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THE

# JOURNAL

OF THE

# SINDH HISTORICAL SOCIETY

EDITED BY

**N. M. BILLIMORIA**
AND
**A. B. ADVANI**

Digitized by M. H. Panhwar Institute of Sindh Studies, Jamshoro.

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## Late Mr. DENNIS KINCAID.

We have to record with deep sorrow the death, by drowning, of Mr. Dennis Kincaid, I.C.S., a distinguished member of the Sind Historical Society, at an early age of 31.

Mr. Dennis Kincaid was well versed in the history, art and religion of India and had made a name for himself by his novels like "DURBAR" and others, portraying Indian life with almost photographic realism.

Mr. Dennis Kincaid was posted at Hyderabad (Sind) as Sessions Judge for a short time, and we are sure, like his distinguished father and author, would have taken a keen interest in the history and folklore of Sind. But this was not to be.

We offer our heartfelt condolences to Mr. Dennis Kincaid's relatives and friends in their great loss.

A. B. A.

# SOME EUROPEAN ADVENTURERS IN SIND.

BY

A. B. ADVANI, M.A., LL.B.

(*Read before the Sind Historical Society on 31st January*, 1937).

Across the pages of Sind History with its hordes of Arab, Moghul, Afghan and Hindu personalities who figure therein, flit occasionally the names of Niccolao Manucci, Charles Masson, James Howell, Hest and other Europeans whose names are obliterated by the dust of Time. Like faded leaves of old forgotten books and records, they lie unknown and forgotten in the limbo of the Past except perhaps by some curious student of Sind History, poring over musty and moth-eaten files and documents in some neglected archives, the repositories of much valuable information about the Past.

Though in Northern as well as Southern India, the European adventurers crowded round the flag of the Moghul Emperor, or Tipoo Sultan, or Maharaja Runjeetsing, yet very few of them drifted to the Unhappy Valley of the Indus. Perhaps Sind offered few temptations to these Soldiers of Fortune. This paper deals with some of those European adventurers, who either passed through Sind, or remained here for a while and then pushed forward to

### Fresh Fields and Pastures New.

No doubt there must have been European adventurers in Sind before Niccolao Manucci with whom this paper starts, but the information about them is so scanty and unreliable that we do not consider it proper to mention them. Perhaps a patient and long research work in the Portuguese and Dutch archives will throw some light on the adventurers of those nations who came to Sind in the distant past.

## NICCOLAO MANUCCI.

Manucci's "*Storia Do Mogor*" in four volumes, is a mine of information and gives a detailed account of this Italian adventurer's life. Manucci was born in 1639 and at the age of fourteen having "a passionate desire to see the world, but as my father would not allow me to leave Venice, my native place, I resolved to quit it in some way or another." (1). In 1653 he secretly boarded a ship bound for Symrna and attaching himself to Viscount Bellomont, an English nobleman, then on his way to Persia and India, he followed him through Asia Minor, Persia and finally India, meeting with several adventures on the way. Both Bellomont and Manucci remained at Surat for about four months, from January to April 1656, and then left for the Imperial Court at Delhi. On the way, at Hodal, Bellomont died and Manucci was left all alone to shift for himself as best as he could. But he was a youth of considerable resource and with the help of a Frenchman—Clodio Malier and Dara Shikoh's secretary, Wazir Khan, he soon found employment as an artilleryman in the service of Prince Dara. At this time, at the Moghul court, any foreigner who could handle or boast of knowing a gun, at once found favour in the royal eyes, there being a craze for employing Europeans in the Moghul army. Manucci's salary

(1) *A Pepys of Mogul India*, being an Abridged Edition of the "*Storia Do Mogor*" of Niccolao Manucci, translated by William Irvine, p. 1 and ff.

was fixed at Rs. 80 per month and he was given a dress of honour and a horse. Soon after Shah Jahan fell ill and his four sons made preparations to seize the throne. It is outside the scope of this paper to deal with the wars and intrigues which took place after Shah Jahan's sickness. After sustaining a severe defeat at Samugarh, Dara fled to Agra and thence to Lahore, relentlessly pursued by Aurangzeb. Till Dara's death in 1659, Manucci followed his varying fortunes, refusing to transfer his allegiance and services to Aurangzeb. From Lahore to Multan and then to the mid-river island-fort of Bukhur, Dara fled, accompanied by Manucci. When Dara and his followers arrived opposite the fortress of Bukhur, word was received that Bahadur Khan—Aurangzeb's general had arrived quite near. Dara sent some 2,000 selected men, Pathans, Sayyuds, Moghuls, Rajputs, including some twenty-two Europeans of different nationalities to Bukhur to hold out against Aurangzeb's army. "When I knew of this order," writes Manucci, "I presented myself before Dara, and urgently besought him to take me along with him..... I renewed my application with protestations and entreaties added to tears, indications of the grief I felt at our separation, asking him to leave all the rest behind him and take me along with him.... I was overcome with tears and sighs at this parting, and, seeing the downcast state in which I was quitting the presence, he called me back. He then made me Captain of the Europeans, and ordered them to give me 5,000 rupees to divide among my men, and doubled my pay." Dara set out for the port of Sindri in the south-east of Sind and from there he sailed for Gujerat. The siege of Bukhur now began in earnest. The island of Bukhur, we learn, was 975 paces long and 553 broad. In the middle was a tower overlooking both the banks of the river. On the west lay Sukkur, on the east Rohri and towards the north there was the small island of Khawja Khizr. In the fortress there was plenty of artillery and munitions of war, besides a considerable quantity of gold, silver and precious stones. In haste, Dara had also left behind some ladies who had accompanied him, and his two grandsons. The attack began with two batteries mounted with cannon doing great damage. But Dara's artillery-men stoutly replied and under cover of their own artillery sallied forth, rushing into the enemy's trenches, killing and destroying all whom they found there.

The enemy found it impossible to overcome by force of arms such gallant foes. So they shot arrows in the fortress with letters attached to them in which the European artillery-men were invited to abandon the service of Dara. One night one of the arrows hit Manucci on the shoulder while he was sitting in his bastion. He took the arrow to the commandant of the fort who rewarded him for his fidelity. The siege went on and the besieged garrison were in sore straits. Food became so scarce that Manucci bought two calves for six hundred rupees, paid thirteen rupees for one chicken. An ounce of butter cost one rupee. Aurangzeb's governor—Khalilullah Khan made further overtures to the Bukhur garrison who got so enraged that it was decided to teach him a lesson. A letter was written to Khalilullah Khan by Primavera, the commandant of the Bukhur garrison that the desired agreement would be entered into if Khalilullah Khan himself came down from Lahore. Overjoyed at this outward weakening of the Bukhur force, Khalilullah Khan hurried down to Bukhur and sent a very civil letter to Primavera. This brave and loyal soldier ordered Manucci to load a cannon up to the very muzzle with horns, old shoes and such other rubbish. A letter was written to Khalilullah Khan to the following effect:—

> "I hold few words with you, for I am greatly amazed at you. And I hope to supply your want, having been all your life a pimp and used to shoe-beatings from women. Herewith what you deserve, I offer you a present proportioned to your merits."

When it seemed that Khalilullah Khan must be reading the letter in his camp, Manucci was told to fire the canon, covering the enemy's tent with the charge it contained. For forty days more after this incident the siege went on. In the mean time Dara had been defeated and captured and was being taken up the river as a prisoner. Realizing that in all probability, the reduced garrison would come to a miserable end, Dara was pursuaded to write to Primavera :—"Unfortunate in the one for whom you fought, I now request and require you to deliver up the place." This was a sad end and Primavera wept at seeing the letter. After getting an assurance for the safety of the garrison from Aurangzeb's army, the fort was surrendered. After fifteen days the Bukhur garrison embarked in some boats and voyaged up the river to Multan. Thus Manucci passed out of Sind. As we are not concerned with his further adventures, we will pass on to the next European adventurer.

## CHARLES MASSON.

At the time (1826) when nothing or very little was known about Sin dthere appears on the scene, a dynamic personality in the shape of Charles Masson, the noted traveller, geographer, archaelogist and numismatist. Before Masson, no doubt Mr. Smith, Pottinger and others had come to Sind, voyaged up the classic river ,the Indus, but they had not gone beyond Hyderabad. To Masson then we are indebted for a detailed account of Sind's social, economical and political aspects. He was a small man, not very sociable and with his grey eyes, red beard and the hair of his head close cut, he might easily have been mistaken for a German. (2) Masson let out that he was an American gentleman, belonging to the State of Kentucky, and that he had been absent for several years from his country. (3) But was he really an American, who filled with wanderlust, wandered through Sind, the Punjab, Afghanistan and Persia, always in native dress, gathering much curious lore, mainly archaelogical and numismatical, and illuminating the history of these countries from the mists of oblivion ? Sir Thomas Holdich tells us (4) that Masson dressed in Afghan clothes, in the role of Afghan traveller, but more or less ignorant of the Afghan language, wandered through Sind, Baluchistan, Afghanistan and other countries, "living with the people, partaking of their hospitality, studying their ways, joining their pursuits, discussing their politics.....

"He lived a strange life in those days. No one since his time has rubbed shoulders with Afghan and Baluch, intimately associating himself with all their simple and savage ways.... Absolutely penniless, yet meeting with a rough hospitality and real kindness now and then, and ever absorbing with a most marvellous power of digestion all that was useful in the way of information..... It was quite as often with the lowest of the gang as with the leaders that he found himself most intimately associated..

"Nothing seems to have come amiss to his inquiring mind. Archaelogy, numismatics, botany, geology, and history.... It was all new, and an inexhaustible opportunity lay before him. He certainly made good use of it..... The route (which he crossed and re-crossed) is described with surprising exactitude, and it has only lately been possible to verify step by step the road he travelled. He could hardly have carried about volumes of notes with him."

(2) Grey, *European Adventurers in Northern India*, pp. 188 and 208.
(3) *Ibid.*, p. 179.
(4) Holdich, *Gates of India*, p. 345, *et. seq.*

So much for the eulogism of Sir Thomas Holdich.

It has recently been proved that this extraordinary person was formerly a private in the 3rd troop 1st Brigade of the Bengal Artillery, his real name being James Lewis. He served with his troop at the siege of Bharatpur and shortly after deserted and went to the Punjab. (5) We have only to read about the condition of the soldiers employed in the service of the East India Company at this time, to realise why Private James Lewis *alias* Charles Masson deserted. At this period, military service in India was a life engagement and a man deserting from the Company's service was just like an escaped convict from any penal settlement. The pay of the Company's soldier was about 14 annas a day, to which were added rations and a free issue of two drams of rum per day. The soldiers were permitted a considerable amount of freedom off duty, and to make what female connexions they chose, without the ceremony of marriage, unless they married Europeans or Eurasians. Flogging for slightest offences was common, 800 lashes being a favourite number. The humiliating part of this punishment to the English soldiers was that this punishment was given in the presence of the native sepoys, who themselves after 1820, were exempted from it. There were besides public executions. Life in the barracks was hard and dismal. There were no canteens, no recreation rooms. The barracks were filthy and there being no *punkhas* which came into use after the Indian Mutiny, the poor Tommy had nothing to do but to curse his lot. The soldiers sought the *bazars* for the company of the lowest of female kind, and drowned their sorrows in alcoholic drinks of the strongest and deadliest variety. And a soldier could get gloriously drunk on four annas. The mortality from climatic conditions, hard life, disease and drink was appaling. (6) No wonder an educated person like Masson deserted and disguising himself as an Afghan traveller took to the unbeaten tracks in Sind, Baluchistan, Afghanistan and other countries. Masson's personal narrative starts in 1826 with these words:

"In the autumn of 1826, having traversed the Rajput States and the arid wastes of Bikanir, I entered the desert frontiers of Bahawalpur." (7)

We will now follow him and his adventures as narrated by himself in his book "*Narrative of Curious Journeys in Balochistan*, etc."

In the beginning of 1829, Masson joined a caravan from Candhar and proceeded towards Shikarpur. He was badly in need of clothes, his old *postin* having become so full of rents, that every day for about three hours he was occupied in repairing it with variously coloured threads. The patched up garment presented a most singular and ludicrous sight. Besides, due to a toilsome trek of several marches, his shoes had got so worn out that they were fairly falling from his feet (8). After halting at Rojan a border town between Kalat and Sind, Masson reached Jagan where Kasim Shah, the governor of Shikarpur, happening to be there, met him and spoke nicely with him. From this place Masson left the *kafila* and travelled alone, going quietly from village to village, being well-treated by the villagers. After two or three days he reached Shikarpur where he stayed for few days, keenly observing this

(5) *Punjab Records*, Book No. 102, Letter No. 65, dated 24th September 1835, and quoted by Grey in "*European Adventurers in Northern India*," pp. 194-195.
(6) Grey, *op. cit.*, pp. 211 and ff.
(7) Masson, *Narrative of Various Journeys in Balochistan*, Vol. 1, p. 1.
(8) *Ibid.*, Vol. 1, p. 361 and *et. seq.*

city, renowned for its wealth and Hindu bankers. As a city Shikarpur is indifferently constructed," he writes. "The bazar is extensive, with the principal parts rudely covered, so as to exclude or moderate the heat, which is extremely powerful. As usual in Indian cities, there is the inconvenience of narrow streets ; nor is too much attention paid to cleanliness. It would seem, indeed, that filth and wealth are inseparable."

From Shikarpur, Masson went to Sukkur passing his first night in a mosque. The *mulla* brought him a supper of bread and *dhal* which Masson enjoyed heartily. Then he crossed the river Indus in a boat refusing to pay the passage fee of one *pais* on the plea of being a *Haji*, and went to Rohri about which he says, "The houses (of Rohri) have an antique and venerable appearance in the distance. The interior of the town is comparatively mean, and the bazar, while well-enough supplied with provisions, is very rudely composed." From Rohri, Masson went to Khairpur by foot. At that time Khairpur was ruled by Mir Sohrab Khan, whose residence was in the very centre of the bazar, occupying a large space and surrounded by castellated walls. Masson considered Khairpur to be a filthy place. "Looking at the stagnant marshes around it, and the extreme heat, (it) need not be wondered at. The same causes, however, impart a beautiful verdure to its groves of mangoe, mimosa, and other trees. The water drunk by the inhabitants has alike a bad repute ; but the Mir has a small well within his wall, so much esteemed, that his relatives at Haidarabad are frequently supplied from it." After remaining for a month at Khairpur, enjoying the simple hospitality of one Mulla Hafiz who was in charge of a mosque, Masson again took to the road, going back to Rohri, and after inquiring about the road he had to traverse and remembering the names of the villages he would meet on the way, he proceeded, frequently losing his way but invariably well received by the poor villagers. After some five or six days he reached the village of Matteli and as usual repaired to the mosque for rest and refreshments. The *pesh kidmat* or servitor obligingly lit up an excellent fire and brought him and two other travellers, "plenty of bread and *sagh* or vegetables boiled with *roghan*, and seasoned, the vegetables being spinach or *meti* (*fenugreeki*)." The two other travellers disdaining to eat such poor stuff, Masson sat down and made a good meal of it. From Matteli, to Pitah Sahher, Mirpur and then while inquiring for a small village about 8 miles distant, Masson came across a man who rudely asked him if he was a robber, to whom Masson humorously replied that he himself was one. What followed next is best narrated by Masson himself :—

> "A female standing by, invited me to her house, and when there told me to sit down while she prepared some bread and broiled fish for me. She was the handsomest woman I had seen in Sind, and very smartly attired. The women of Sind dress gaily, in bodices worked over with variously coloured silks in many patterns into which they frequently insert pieces of looking glass. My pretty hostess wore a red silk bodice, tastefully decorated in this manner, which set off her fine form to a great advantage. So agreeable a companion detained me the greater part of the day, although I was not conversant enough with the country dialect to hold much profitable conversation, yet I understood that she had desires unaccomplished and that she languished to become a mother. I moved on to another village."

Thus from village to village, Masson went on, blessing those credulous people, who took him to be saint, with much solemnity and giving a witty or sharp reply if

any one put awkward questions to him, till he passed out of Sind into Bahawalpur territory. Masson's journey to Lahore in 1829, was beset with very dangerous experiences. We learn that once on the way he was stripped of all his clothes by a band of wandering robbers who would not even allow him to sit by their fire. Next morning a passing Moghul soldier saved his life by giving him some food and a ragged cloak. He covered at one time, by easy stages, a distance of 389 miles from Fazilpur to Lahore, possessing only two rupees. Of this *great* sum, we learn with almost envy, that Masson still had eight annas left in his pocket on his arrival at Lahore. Alas for the good old days, when travelling was so inexpensive and people so generous and hospitable ! At Lahore General Jean Francois Allard who was then in Maharaja Runjeetsingh's employment, promised him military service. Masson politely declined the offer and quietly left Lahore for Sind. He reached Rohri safely and then after going to Khairpur, staying as a guest of Fateh Mahomed Ghori, the minister of the Khairpur Mir, he intended to go down to Hyderabad. Being informed that the direct route from Khairpur to Hyderabad was most dangerous at that point where the frontiers of the two territories unite, he went to Shikarpur, from where accompanied by a friendly Afghan, he proceeded towards Larkana, which was then governed by Nawab Wali Mahomed Laghari. At a distance of 12 miles from Larkana, he got into a boat which was going down to Hyderabad and sailing past Sehwan, he reached Kotri from which place he visited Hyderabad. At Hyderabad he resided in the house of one Mirza Kurban Ali who was in the service of Mir Nasir Khan. "So cheap was subsistence," writes Masson, "that I did not expend more than three rupees, or about five shillings monthly." The fort of Hyderabad impressed him, about which he recorded:—"At the southern extremity of the town is the fort, a large irregular building, with lofty walls and towers conforming to the outlines of the scraped eminence on which they stand. It is built of kiln-burnt bricks, and, with its various lines of loopholes, has a singular and interesting appearance." The people of Hyderabad bragged too much to please Masson. If he inquired as to the revenue and military force, he was told exaggerated account of a crore of rupees and a lakh of *bandaks* with Baloches to use them. "I never saw aything in the shape of troop," says Masson, "save the few mounted attendants who accompanied the Amirs on their hunting excursions." Masson remained at Hyderabad for about four months. The cold season was nearly over and Masson had been afoot for about four years. He therefore decided upon going to Karachi and thence make his way to Persia. He took to the Indus and sailed down to Thatta which he found in decay, yet having abundant vestiges of former glory as evidenced by a multitude of tombs on the Makli hills. "The town has seriously suffered during the last fifteen years," he writes, "when its cotton fabrics gave way before the superior British manufactures. It yet makes *lungis*, and shawls of mixed silk and cotton which are esteemed." From Thatta Masson walked to Karachi, encumbered with a sword which accident had thrown in his way at Hyderabad. "I had seldom travelled with a weapon, and think the solitary traveller is much better without one. In this journey, on several occasions, I was obliged to put my hand on my sword, when, without it I might probably have passed without so much notice." Reaching Karachi Masson was thrilled with the sight of the sea, which he had not seen for so many years. There was considerable trade in Karachi and the town was "surrounded with delapidated mud walls, provided with towers, on which a few crazy guns are mounted." Masson along with several historians and geographers considers Karachi as Alexander's Haven, the place which sheltered for some time the fleet of Nearchus in 326 B.C. From Karachi, Masson went to Muscat in

an Arab country boat. After knocking about for few months at Bushire, Baghdad and Aleppo, at the request of European officials at Basra and a handsome donation of funds from Sir John Campbell, the then English resident in Persia, who were all interested in his wanderings and antiquarian and archaeological possibilities of Afghanistan, Masson was induced to return to Afghanistan and do systematic and organized work. (9) He took his passage in an Arab junk destined for Karachi and arrived at that place at night time some where in April 1831. (10) The next morning as the boat entered the harbour, the Baloch soldiers stationed at the Manhora fort, fired some muskets over the party and ordered them to stop. A party of soldiers came on board their vessel. They had been informed that a *Feringhee* (Masson) on board this Arab boat intended to get down at Karachi. The leader of these soldiers recognized Masson but informed him that the Governor of Karachi, Hassan Khan by name had received orders from the Hyderabad Mirs, not to permit any European to land at Karachi. Masson also learnt that two European gentlemen at that time, had arrived at one of the mouths of the Indus, anxious to proceed to Lahore by the river route, but were not being permitted to do so. (11) Masson protested that the Mirs' orders had a reference to ships of war and not to individuals, but all in vain. A party of three soldiers was left on board the vessel to guard Masson and to prevent his landing on shore. Masson who had poetic leanings has written some verses about this incident in his book *"Legends of the Afghan Country in Verse"*, which I give below :—

ON BEING REFUSED PERMISSION TO LAND IN SINDH

Although events seem adverse,
Chase sorrow from thy breast,
If not exactly as 'twas wished,
Perchance 'tis for the best.

Against the will of Heaven
Forbear unjust reproach ;
If not allowed to land in Sindh,
Why do so in Beloche.

If the peril should be greater,
The glory will be more ;
And e'en should fortune fail thee,
'T were folly to deplore.

So frail is human nature,
So feeble human sight,
Our measures oft are thwarted
But to put our motions right.

Then with pious resignation
Submit to Heaven's will ;
The power erst has saved thee,
Implored, will save thee still :

No matter what thy danger,
Or wither ye may stray ;
If the grace of God attend thee,
And cheer thee on thy way.

Steer, steer then for Ormarah,
And re-assure thy breast ;
And be assured what Heaven ordains
Is ever for the best. (12)

(9) Grey, *op. cit.*, pp. 188.
(10) Masson, *op. cit.*, Vol. II, p. 6 and ff.
(11) These two European gentlemen were Lieut. Alexander Burnes and Ensign J. D. Leckie, who were carrying a present of horses and an ornamental carriage to Maharaja Runjeetsing. Cf. Advani, *"His Majesty's Horses"*, Vol. II, part I, pp. 1-8, *Journal of the Sind Historical Society*.
(12) Reproduced in *Calcutta Review*, Vol. XI, pp. 227-228.

Writing of such trite verses was no doubt, amusing, but it did not solve the problem. The three soldiers placed on guard over Masson proved so uncivil that Masson ordered the crew of the Arab vessel, not to give them anything to eat. This had the desired effect of causing two of the soldiers to hail a fishing boat and going back to Manhora. The third soldier proving tolerably respectful was supplied his wants. Seeing Masson's medicine chest he insisted on having some medicine though he had no need of it. Masson administered a large dose of some strong purgative to him "which producing very sensible effects he was also glad to hail a fishing boat to rejoin his companions." This repulse at Karachi was disconcerting to Masson as it upset his all previously formed arrangements. Masson therefore decided to go to Makran and from there proceed to Kalat and other countries in the North. This proved to be a blessing in disguise, for when in Kalat, where and in the vicinity of which place he resided for seven months, he made several friends who ten years later, when he had the misfortune of becoming a prisoner there, were instrumental in saving him from destruction. From the inhospitable shores of Karachi, Masson went to Sonmeani and there some months later he learnt that when the Mirs were told of Masson's arrival at Karachi they had written to the governor of Karachi to facilitate the journey of Masson and to allow him to incur no expense on the way. The Mirs also rebuked the governor of Karachi for not permitting a defenceless and unassuming stranger to land, whom chance or necessity had brought to their territories.

We next hear of Masson, a few months later, in company of some merchants, entering Sind from Larkana side. It is easy to follow his tracks from the following itenarary :—

| | | | | |
|---|---|---|---|---|
| Dera Ghaibi | Amil Bugh | Got Ghai Khodabad | Feridabad Babur-di-Got | Got Husson Khan Jui |
| Chinni | Trenni | Bubak | Baloch Got | Sehwan |

Masson had heard something curious about the village of Trenni, namely that the village of Trenni had an ignoble repute of dog-stealing. By his stay in the village he was able to verify for himself the truth of this strange rumour. One of the merchants in whose party he was travelling, had picked up on the road a very large dog. The merchant always expressed his fear that the dog would be lost at Trenni. All precautions were taken, regular watch was kept but in the morning there was no dog, At Sehwan Masson stayed in a *fakir's takia* overlooking the Aral canal and near the fort. The officers of Diwan Sangat who was the farmer of revenues at Sehwan on being informed of the arrival of Masson's party, came to ascertain the number of individuals so that provisions and food stuff might be supplied to them according to the custom of Diwan Sangat. The party received a fair allowance of rice, flour, roghan and sugar. Masson found the fort of Sehwan in a delapidated condition though the entrances were still well marked. "Quantities of burnt grain, as wheat and gram are discoverd in some parts," writes Masson. "On examination of these, I found they were intermixed with fragments of bone and of cocoanut shells, ample proofs that they denoted spots of cremation. This fact also explains why coins, trinkets, and other trifles should be met with so frequently, they being merely deposits with the dead, as far as the coins are concerned, and the trinkets were attached to the corpse when consumed. I did not see any of the coins found, but understood that they are invariably Mahomedan, especially coins of the Caliphs." Masson also visited the shrine of Lal Shah Baz and noted that the Mirs of Sind offered costly dona-

tions at the shrine and sometimes repaired to Sehwan to implore the good offices of Lal Shah Baz. From Sehwan Masson returned to Baloch Got and the party soon passed out of Sind to the West in the land of the Brohis.

There is very little left to record of Masson's rambles in Sind. We next hear of him in 1838, when he accompanied Sir Henry Fane, the Commander-in-Chief of the British armies in India. Sir Henry Fane was passing through Sind on his way to Bombay for embarkation to England. After seeing Sir Henry Fane off at one of the mouths of the Indus, Masson returned to Thatta for the purpose of seeing Sir Henry Pottinger, the then British Resident in Sind and forwarding through him to England the manuscript of his book, from which we have quoted so freely. What became of Masson after this date is beyond the scope of this paper.

## ROBERT DICK.

Robert Dick, we learn from the book of C. Grey *"European Adventurers in Northern India"* (14) was the illegitimate son of Major-General Sir Robert Dick, of the 42nd Highlanders, a distinguished officer, who had served in the Peninsula, at Waterloo, and was killed at the Battle of Sobraon. Robert Dick started his military life in the Gwalior forces, then in the Skinner's Horse, from where in 1831 he drifted to Shah Shujah-ul-Mulk's army. He however did not agree with Shah Shujah. Inducing some 300 native sepoys to follow him, he set out to seek service elsewhere and succeeded in finding it with the Mirs of Hyderabad. The Punjab Records mention that in Sind Mr. Dick was placed in charge of five guns and received Rs. 900 on account of his salary. He was also presented with a gold pendant and two silk flags, highly ornamented with gold and silver embroidery. He was also to have no officer appointed over him, and neither the Mir nor his officers were to interfere with him. (15). When Mr. Dick had left Shah Shujah's service, he had quietly taken not only the salary of 300 sepoys but also the pay of the other half of the battalion. A Subedar of this unpaid half of the battalion traced him to Kotri and demanded a share of the money with which Mr. Dick had calmly walked off. The Subedar, Behari Lal by name, and Mr. Dick had many wordy battles and spoke about one another with a great deal of freedom, but nothing seems to have come out of it.

In 1835, Mr. Dick died of fever and excessive drinking. (16). It is not mentioned where he died.

## HEST.

Dr. R. H. Kennedy in his *"Narrative of the Campaign of the Army of the Indus"*, writes that on 4th February 1939, at Hyderabad, his friend Major B.... came across a Greek commandant of Hyderabad Mirs' artillery, whose name has now been found to be Hest. Major B....and Hest drank a bottle of beer and another of Maderia, after which he confided in Major B....that his salary was Rs. 75 per month, to which stipend he added the pay of some 200 paper men upon his muster roll. (17) Considering that the average pay of an artillery man was Rs. 6 per month, we find that Hest by showing two hundred non-existent artillerymen on the pay-sheet, added

(13) Masson, *op. cit.*, Vol. III, p. 496.
(14) Grey, *European Adventurers in Northern India*, pp. 311-313.
(15) *Punjab Records*, Book No. 101, Letter No. 27.
(16) Grey, *op.* and *loc cit.*
(17) Kennedy, *Narrative of the Campaign of the Army of the Indus*, Vol. I, p. 145.

a not inconsiderable figure of Rs. 1,200 to his modest salary of Rs. 75. Beyond this little bit of information nothing is known about Hest. Late Syed Qamr-ud-Din a contemporary of Maharaja Runjeetsing and the author of *"Recollections of Ranjit Singh's Officers"* says, "Hest was a colonel in some regiment. It is not known where he fell or was buried." (18)

## CAPTAIN JOHN HOWELL.

We first hear of Captain John Howell at the Battle of Meeani on 17th February 1843. Nothing is known about his life prior to that date.

"At the Battle of Meanee, in February, 1843, an Englishman who had been fighting in the rank of the forces of the Amirs of Sindh as Commandant of their artillery, was taken prisoner.

"He was brought before the A.Q.M.G., Lieut.-MacMurdo, and on being asked from where and whence he came, he replied: 'My name is John Howell; I am a Welsh man, and formerly served in the Royal Artillery (19) and am now in command of the artillery of the Amirs of Sindh.'" (20). Sir Charles Napier gives slightly further information about this man. The entry in his diary on 8th December 1844 reads thus:

> "Mr. Howell, the man who commanded the Ameer's artillery at Haidarabad and Meeanee against us, has been set free. My best has been done to effect this, for his story is doubtless true namely, that matchlocks were placed to his head to force him to act; he has been two years a prisoner. When taken his conduct pleased me. To give him an opportunity of escaping I said: You are it is understood an American and free to go, though I might keep you as a prisoner of war. General, I will not deny my country. I am an Englishman. Then you are a traitor and I must hang you. I hope not, General. I am no traitor. Eight matchlocks were put to my head, I hope you will not put me to death. I acted against my will but I will not deny my country to save my life. Well, Mr. Howell, I will not hang you, but you are a prisoner....Poor man, he has been in these countries since he was eleven years of age and can hardly speak English." (21).

John Howell was also called Chota Khan and at the Battle of Meeani he felt patriotic and fired his guns *over* the heads of the soldiers in Napier's force instead of *into* them. (22).

Sir Charles pitied the man who at the point of the sword, fired his guns at his countrymen and connived at his escape.

Some years after, Lieut. MacMurdo, now the Q.M.G. of Sir Charles Napier's force was hurrying to North to assist in the First Punjab War. At Bahawalpur he called on the *wazir* of Bahawalpur whom to his great surprise he found to be no other than John Howell in native dress. He was now known as Captain John Howell and was spoken

(18) Grey, *op. cit.*, p. 358.
(19) Mr. Howell apparently made a mistake saying that he served in the Royal Artillery, because the British Royal Artillery was stationed in India after the Indian Mutiny.
(20) Reproduced from Grey, *European Adventurers*, pp. 355-356.
(21) *The Life and Opinions of General Sir Charles Napier*, Vol. III, pp. 188-189.
(22) Burton, *Scinde or the Unhappy Valley of the Indus*, Vol. I, pp. 151-153.

of as soldierly and efficient. He served well as supply officer in the Bahawalpur contingent, sent against the rebels under Dewan Mul Raj at Multan. Howell returned to Bahawalpur soon after and died there in 1865 (23).

Such were these Soldiers of Fortune penetrating the most distant places, after weary and toilsome journeys, suffering untold miseries, often dying far from their native land, leading a most hectic life, and who, some of them any way, to repeat the words of Rudyard Kipling,

Drilled a black man white,
And made a coward fight.

(23) Grey, *op. cit.*, pp. 356-357.

# DID THE EUROPEAN TRAVELLERS IN THE MIDDLE-AGES EVER VISIT SIND ?

By

FR. ACHILLES MEERSMAN, O.F.M.

In the Middle-Ages we meet with a relatively large group of European travellers who on their various journeys penetrated far into Asia. They were mostly adventurous traders or Roman Catholic priests who for spiritual or lucrative motives ventured as far as China. On their way thither they often touched certain parts of the Indian Empire.

But what part of India did they visit ? Did they also visit Sind and the Indus valley ? These are questions which we from Sind immediately put.

We know that the Indus river was known to the Europeans of those days. They could read about (1) in their Greek and Latin classics. We find, therefore, that certain mediaeval writers even take it as one of the division-lines to divide the whole of South-Asia into different parts, as for instance Roger Bacon, O.F.M. did (1).

But did any European in those days ever visit the Indus ? This we would not dare to affirm nor deny unless we had seen the accounts of all the commercial travellers of those days. However, as far as we have been able to make out, we would be in favour of replying that none of the more famous travellers ever touched the territory occupied by the present province of Sind and well for the following reasons.

According to John de Monte Corvino, O.F.M. (1247-1328), the first Bishop and Archbishop of Khambaliq, the modern Peking, there were two routes that led to China (2). The one led from the Crimea through Mongolia to Peking. This is the one the Polos first took and also John de Plano Carpini, O.F.M. and William Rubruk, O.F.M. as far as Karakorum (Mongolia). Since this trail lay on the other side of the Himalaya it is most improbable that those who took it, ever visited Sind.

The other route was the sea-route, according to John de Monte Corvino, the longest and most dangerous. According to him it took about two years to make this trip. He complains bitterly about the roughness of the sea and the boats which were then in use. The sea journey was generally done in two parts : The first from Ormuz in the Persian Gulf to South India and the second from South India to Cathay (China). The first European to make the voyage to China in this manner was this same John de Monte Corvino.

But could not those who sailed from Ormuz to South India, have touched Sind and the Indus valley ? It would have been possible but nowherein the accounts do we find the Indus mentioned. Besides they distictly state that the voyage was made in two parts only, as we have already said. Finally if we take into consideration the kind of boats they used and the time in which the trip was done

(1) A. van den Wijngaert, O.F.M., *Sinica Franciscana*, Vol. I, *Itinera et Relationes Fratrum Minorum XIII et XIV Saeculi, Quaracchi*, 1929, p. CXIV. We must not confuse this Roger Bacon of the middle-ages with the later one.

(2) A. van de Wijngaert, O.F.M., *Jean de Mont Corvin, O.F.M., Premier Eveque de Khambaliq, Lille* 1924 p. 12.

it is very improbable. Bl. Odoric de Portu Naone, O.F.M. mentions that he made the voyage from Ormuz to Thana in 28 days. John de Monte Corvino took something more than a month to sail from Ormuz to Quilon. With this space of time we find it almost impossible for any of these travellers to have visited Sind. And these travellers may surely be ranked amongst the greatest of their days. For completeness, sake let us add here whose accounts and letters we have looked through : John de Plano Carpini, Benedict Polonus, William Rubruk, John de Monte Corvino, Peregrinus de Castello, Andrew de Perusia, Bl. Oderic de Portu Naone, Paschal de Victoria, John de Marignolli, Anonymus Hispanus, all of them Franciscans.

We have thought it worth while to publish these few notes, that others in search for references to Sind, might not be tempted to take the trouble of going through these accounts, but might rather look for them where we have not been able to search, namely in the accounts of the commercial travellers of those days. It also shows us now the trade-routes of those days lay and from this we might be helped to know and deduce certain conclusions regarding the importance or non-importance of Sind in those days.

# EARLY CANAL ADMINISTRATION IN SIND.

By

H. T. Lambrick, I. C. S..

(*Read before the Sind Historical Society on 28th February and 25th April*, 1937)

The advent of the Lloyd Barrage system of irrigation in Sind has been attended by publicity commensurate with its importance, actual and prospective, in the economic development of the Province: and the magnitude of the scheme, dwarfing all that have preceded it, not only in Sind but throughout the world, having fired the public imagination, produced in many quarters an erroneous impression which still persists.

The new-comer to Sind may well be excused for the hasty assumption that any irrigated tracts that he sees were previously unirrigated, and that the main function of the Barrage canals has been to convert into a garden what was previously desert. But there are not a few, whose acquaintance with the country began before the operation of the scheme, but is limited, if not only to Karachi and a few other centres, to what they have seen on railway journeys through the province, or shikar expeditions to its less favoured regions, who fall into the same error. The passenger by the "Lahore Mail" has for years been accustomed to speak of his journey "through the Sind Desert", though he has barely approached the Rohri Registan on the borders of Bahawalpur, and that outlying portion of the Thar that lies east of Nawabshah; whether the rocky upland tract between Hyderabad and Karachi may properly be designated a desert is a question that may be left to the decision of philologists, who, however, would certainly not count it as Sind, the valley of the Indus.

The greater part of that valley, the characteristic dust of which got into our railway passenger's eyes, and blinded him to the almost continuous evidence that the country he was traversing was not a desert, has been irrigated by canals in almost every direction for at least a century before he made this journey, when, we may imagine, the old system was still in action. And even the most inveterate Sindhi may not perhaps realise their full extent till he studies the map which accompanies that excellent work, A. W. Hughes' *Gazetteer of the Province of Sind*. The vast majority of the very numerous and extensive canals shown as covering this tract were in existence half a century before 1873, the date of the book, and remained in action half a century later. There were kings before Agamemnon, and assuredly there was extensive canal irrigation in Sind, not only before the Barrage, but before the British Conquest. Trace on this map the canals which owed their origin exclusively to the British, during those first thirty years of their administration. There is only the Mithrao, the Thar canal with its branches, and the Sukkur canal; the main function of the last, however, being to give a better supply to the existing Maksudo Wah. There are of course important extensions, like the tail of the Begari: important improvements, like Colonel Fife's supply channel to the Eastern Nara, St. Clair Ford's feeder to the Ghar, and the Gillespie canal from the Western Nara; but the total mileage of British works amounts to a few hundreds as against thousands already in existence.

Between 1873 and the Barrage era the list lengthens, with the Jamrao, the Desert, the Unar, the new Nasrat and others; but up till 1932 the canals in Sind, though

graded and regulated *secundum artem* by British engineers, were essentially a progressive development of what was found functioning in 1843, with nothing revolutionary about them. Nearly three and a half* of the eight districts of Sind remain unaffected by the revolution which the Barrage brought, while in two others its main function has been to give water at a higher level and with a regulated supply to canals already in existence. Without venturing upon statistics, and at the risk of offending the susceptibilities of those with technical knowledge, the effect of the Barrage system may be summed up as follows:—

(*i*) *Simplification.*—Instead of having hundreds of canals drawing their supply by separate mouths from the Indus every few miles between Sukkur and Hyderabad, all within the Barrage zone are served by five main feeders from Sukkur, exclusive of those in Khairpur State territory. The erosion and silting up of the heads of canals is thus a thing of the past.

(*ii*) *Assured and Perennial supply.*—The canals within the Barrage zone are secured from the vagaries of the abkalani or inundation season, the level of water at the head of the main feeders being regulated according to demand by the operation of the Barrage gates. This, with the scientific alignment of all new canals on the highest levels, gives a perennial supply to the land under their command.

(*iii*) *Development of hitherto unirrigated areas.*—This follows naturally from the high-level system. The tracts most notably affected are in Thar Parkar, Dadu, particularly Johi taluka, and the north-west part of Larkana district, with a vast number of smaller isolated areas in Nawabshah and Hyderabad districts.

This, the most spectacular feature of the new system, is in fact less important than its provision of assured supply in existing canals and new branches in the older irrigated tracts, and above all its substitution of perennial for single season supply—the epoch making revolution in Sind Irrigation, the earlier history of which may now be traced.

We may be tolerably certain that artificial irrigation in Sind began with the earliest dawn of civilisation in the Indus valley. We know that the inhabitants of Mohenjo Daro used a bullock-cart identical with that commonly seen in Upper Sind to-day: the river boats have not altered since Alexander's time; and we may conclude that irrigation round the flourishing cities of Alor and Brahminabad was carried on by each of the three means familiar to-day under the names *moki*, *charkhi*, and *bosi*. I omit *chahi*, or well irrigation, as it is not peculiarly characteristic of Sind. The first named, that is irrigation by flow, necessitated cuts from the river or its branches to low lying lands. These were the earliest form of canal, regulated by '*chabs*' in the same rude but effective way as a Zemindar gives its '*waro*' to each branch of his *karia* on inundation canals to-day. *Charkhi* cultivation involves some apparatus for conveying water to a higher level than its natural one; but it is useless to conjecture when the Persian Wheel, which has been almost exclusively used for this purpose throughout historical times in Sind, first made its appearance. It can fairly be pre-

*Karachi entirely: the southern half of Hyderabad: while the areas in Sukkur and U. S. F. under the Barrage command are trifling in comparison with those served by inundation canals.

sumed, however that the vast bulk of cultivation in Sind from pre-historic times down to the eighteenth century was *bosi*; that is, *rabi* crops raised on lands naturally flooded by the season rise of the Indus, after its subsidence: an operation necessitating no labour beyond the clearance of jungle, often perfunctory in the extreme, and sowing the moist deposit after an equally perfunctory ploughing.

It is well to recollect that the area annually overflowed has become far less extensive since the provision of an almost continuous line of river protection bunds on either bank, which began to take their modern form from about 1875. The bunds, too, have greatly restricted the flow of water in the Dhoros, or old channels of the Indus and its subsidiary streams: where these have not been canalized they now receive for the most part percolation water; but occasionally canals 'tail' into them, or fresh water is admitted through escapes to relieve pressure on the bunds. Only then can some idea be formed of their importance in bye-gone days in Sind, when during the inundation freshets from the Indus reminded its old beds that they had once carried the main stream.

As centuries passed, the Indus progressively contracted the annual variations of its course, while raising itself on the ever increasing deposit of alluvium; leaving only the overflow to adopt its old channels, whence *moki* and *charkhi* cultivation could be carried far into the interior. Notable examples of this natural canalization of Sind remain; the Eastern Nara and Dhoro Purano, probably the main river upto a period not long anterior to the Muslim conquest: the Western Nara, the Ghar and Naurang with its branches: and in Lower Sind the Fuleli, Pinyari, Baghar, Kalri, and many old branches in the Delta.

These channels take pride of place in the pre-Barrage irrigation of Sind: most of them were improved and adapted by human agency during the last two centuries, but they remained essentially natural branches of the Indus. This is clear from the extreme tortuosity of their course—the word Nara means a snake—and from the absence of spoil banks of any size, the significance of which was correctly appreciated by Lieut. James in his description of the Ghar and Naurang as he knew them in 1844-47. In such channels the deposit of silt is generally trifling, as their natural fall is sufficiently steep to prevent that stagnation of flow which allows the Indus water to discharge it. It is noteworthy that James gives the rate of flow of the Ghar as three and a half miles per hour, which is the same speed recorded by Postans for the Western Nara.

Clearance, however, was doubly necessary at the mouths of these rivers; where it was attended to, they became semi-perennial, as was the Jamrao system even before the advent of the Barrage, depending as it did on the Eastern Nara. Lieut. James notes that in his time the Ghar became dry in November, but that a few years before it was said to continue full all the year round. I myself recollect the Ghar flowing quite strongly in the beginning of December, and *charkhi* cultivation was usually carried on from it considerably later.

Then follows a second class of canals, in which it is almost impossible to distinguish what is artificial from what is natural. In Upper Sind, the Sind Wah, in Sukkur and Shikarpur talukas, the Dahar and Maharo canals in Rohri division, and the Mir Wah in Khairpur State fall within this category. Of those mentioned, Postans thought the Sind Wah essentially a natural channel, and the Mir Wah "a canal rather than a branch of the river." To these may be added a number of canals in the upper

part of Hyderabad district, now superseded. It is unfortunate that Sindhi traditions as to the origin of the older canals do not seem to have been recorded, unless indeed reports on them are buried in the voluminous archives of the Commissioner's office. But, as observed by Sir Bartle Frere, much valuable information collected by Sir Charles Napier's Canal Department was lost; and the inquisitive spirit of men like Hugo James in Chandooka, and Jameson in the Naushahro Division, was the exception among a general indifference to the obliteration of native tradition.

Which, then, were the first purely man-made canals? I have little doubt that the Begari was one. The first few miles of its course are indeed tortuous and without evidence of spoil-banks: but from the opposition of its direction to the course of the Sind Dhoro, which was undoubtedly its earliest source of supply, it would seem to be artificial. Its very name suggests forced labour, as was observed by Major Goldney, the second Collector of Upper Sind under Napier.

Another ancient canal was the Naulakhi, in Naushahro Division, which Lieut. Jameson considered to have been dug before the Kalhora dynasty *i.e.*, before the beginning of the eighteenth century. The list might be added to, but where so much is conjecture I prefer to limit my observations to canals of which I have personal knowledge.

The first great architect of canals in Sind was Mian Nur Mahomed Khan Kalhoro, who began his rule, nominally as a "subhedar" of the Moghul Empire, about 1719. He first possessed the government of Sevistan, which may be considered as extending between Multan and Sehwan, and it was not till 1736 that he made good his claims to administer Tatta. With the remarkable ups and downs of this Prince's fortunes we have nothing to do; but it is noteworthy that his great canal works were all constructed in Upper Sind, where his power was first established.

Three of the principal branches of the Ghar system owe their origin to him; the Nur Wah and the Shah-ji-Kur, the former ten and the latter twenty miles in length are named after him. The Dato-Kur, equal to the Shah in length, was excavated during Mian Nur Mahomed's reign by one Dato Khuharwar, of whom Lieut. James makes honourable mention:—"he was a man as renowned for his wealth and for the canals dug by him as for his unbounded liberality." It is a matter for sentimental regret that this canal, as also the Shah-ji-Kur, is no longer in active existence, their command having been taken over by the Warah Branch and other entirely new canals of the Barrage system. Lieut. James considered the Dato "the finest artificial canal in Upper Sind," and there are those who will recall pleasant memories of the leisurely journey from Larkana to Shahdadkot in a grain-boat in the days, not long since, when it was still an important means of internal communication. It must be admitted, however, that the alignment of these two canals bore a most imperfect relation to the natural fall of the country.

Another canal constructed by the Kalhoro Prince, and bearing his name, is likely to remain in action for an indefinite period—the principal branch of the Begari, in Upper Sind Frontier district, well known as the Nur Wah.

Nor were Mian Nur Mahomed's activities as a promoter of canal irigation confined to the right bank of the Indus. The Nasrat Wah, in Naushahro division, was dug in his reign by one Nasrat Khan Chandio; while the Murad, Bag, and Pheroz,

branch channels of the Naulakhi canal were excavated by three noblemen of his court, Murad Kalhoro, Bago Sial, and Pheroz Wairur. The modern Nasrat canal combined portions of these, and in its turn has become one of the principal branches of the Barrage Rohri Canal.

The management of the Sind canals under the Kalhoros would seem to have been more efficient than under their successors on the *Gadi* of Sind, the Talpurs; and the reasons are not far to seek. The Kalhoro chiefs reigned as absolute despots, singly, while the Mirs from an early period in their dynasty divided the sovereignty and parcelled out the country among themselves. Moreover, the annual tribute of twenty lakhs of rupees exacted by Nadir Shah from Mian Nur Mahomed in 1739 had to be paid fairly regularly for many years, the Kalhoro chiefs receiving several reminders of their subjection to the Kandahar court in the shape of invading armies under Ahmed Shah and others; and the extensive wars of Mian Ghulam Shah and his successors demanded a full treasury.

The Talpurs, though indulging in a good deal of fighting among themselves, and making a few easy conquests, were virtually freed from the burden of the Afghan tribute on Shah Shuja's expulsion from his throne, many years before he gave them a formal release from it. With a few exceptions they were inclined to remain content with their possessions in the condition in which they received them, and often allowed the canals to deteriorate; not merely through indifference, but, in their all absorbing devotion to shikar, they were eager to see fertile tracts revert to their original state of jungle. Enough and more than enough has been made of this venial error, and on the other hand far too little is known of the Talpurs' achievement in canal construction. Canals bearing the name Mir Wah are found in every district, and the total mileage constructed during the Talpur dynasty must have been very considerable. Unfortunately, the majority of these works were undertaken by individual Mirs, simply to benefit their own possessions, which were intermingled to a remarkable extent; and this accounts for the uneconomic duplication of main feeders from the river, which was such a feature of Middle Sind; and, in almost all parts of the province, the phenomenon of three or more separate *karias* or lesser water courses, running side by side for miles from their mouths in the feeder, befor diverging to irrigate the lands of their respective owners is common: this still persists on inundation canals, and is practically ineradicable. Richard Burton explains the reason of it to Mr. Bull in the following terms: "Each canal when excavated belonged to some Native Chief, whose estate lay upon the bank: and an attempt to borrow water without leave in these regions would have excited a storm of wrath as violent as that would be in your bosom, Mr. Bull, were a stranger to lay his hand upon your cotton."

On the other hand, Sir Bartle Frere observes that individual Mirs added more than a lakh of rupees to their revenues by the construction of a single work, and notices particularly Mir Sohrab Khan of Khairpur and Mir Nasir Khan of the Hyderabad house. Perhaps the excellent Mir Wah in Khairpur State owes its origin to the former; while 'Nasir Wahs' are legion. In Lower Sind, however, divided rule, minute sub-divisions of territory, and mutual jealousies stood in the way of systematic improvement.

For the character of the Mirs' canals, we may consult Burton and Colonel Scott, who were both employed upon them under Napier. The former writes "You may also

remark, that the heads of these canals are usually so placed that the drift of sand carried down by the main stream may choke them up as soon as possible. The rise and fall of ground was calculated by the practised eye—spirit levels being things unknown —consequently the line of direction was, in one case out of ten, chosen for the best. The banks instead of being disposed at a convenient angle, were made either perpendicular or to lean the wrong way, so as to occasion as much labour and loss of time to the excavators as even the latter, gainers by the thing, could desire. The prodigious tortuousness of the bed may appear to you the result of calculation, an attempt to make natural locks: quite the contrary; it is the effect of ignorance, these abrupt windings being intended to get over the difficulty of some trifling rise." There is something to be said on the other side of this last proposition: however, Colonel Scott confirms Burton's remarks on the vertical sides, high spoil banks close to the edge, doubling the amount of annual clearance needed, unnecessary duplication, and generally tortuous course of the Mirs' canals.

As to their administration, we are unfortunately without the slightest knowledge of the system of the Kalhoros, and can only presume that under a despotic ruler it must have been more efficient than that in vogue under the Mirs. The general impression to be gathered from the various monographs and histories of Sind before the British conquest is that the Kalhoras raised a greater revenue than the Talpurs, although the latter, towards the end of their rule, levied a number of new taxes. The extensive grant of lands in jagir by the Mirs to their followers must of course be taken into consideration. But the figures of the surplus revenue after discharging the cost of administration given by Postans are:—at the beginning of the nineteenth century, forty lakhs; in 1809 forty three lakhs; in 1814, sixty one lakhs; in 1824, under fifty lakhs; decreasing again to thirty five lakhs just before the British conquest. Now uptill 1809 the Afghan tribute of twenty lakhs annually had to be paid, at least in part with some regularity; so it is clear that the trend of revenue receipts may be considered as a steady decrease during the Mirs' rule. Postans gives the impression that they generally neglected the clearance of canals, and observes that their avarice here defeated its own object. "....resources were completely neglected all over the country, occasionally only a forcible conscription of the Miani (Mohana) tribe being made to clear them; but as neither pay nor food were for any length of time afforded to these poor people, they invariably deserted, and little or nothing was done."

This is pure generalisation from a single notorious instance of which Postans had personal knowledge. In actual fact, several sytems of canal clearance were in vogue; and the Mirs were in the habit of farming out particular tracts to individuals, whose interest, made keener by the knowledge that no remission would be given, assured adequate clearance of the canals that irrigated them. This system, known as *Eri Rakab*, is said to have been introduced by the celebrated Wali Mohomed Khan Laghari, Mukhtiarkar of Chandoko; and may have been copied from that introduced by the Moghul Emperor Akbar. James records that the district of "Nalah Datah" *i.e.* lands watered by the Date-ji-Kur, was in 1840 sold in contract for one season to one Fatehchand for a lakh of rupees, and that he expended Rs. 7,000 on clearing the canal. He gives another instance, when Mir Shahdad sent an order for Rs. 10,000 to be expended on the clearance of the Shah-ji-Kur, which watered his country: but owing to the war in the following season the work was not carried out. It is well to bear in mind that the presence of the British in Sind from 1838 onwards cannot but

have produced a disturbing effect on the Mirs' administration; and the choked condition of canals as found in 1844 may not have been of many years' standing.

The normal systems of clearance under the Talpurs may be stated as follows:— Each Mir sent his kardar after the subsidence of the inundation to see what clearance would be necessary for the coming season. As much of the work as possible would be exacted from cultivators interested in each particular reach of the canal, and the amount so done would vary according to the power and proximity of the Mir in question. In parts of Upper Sind however the whole work was sometimes done by unpaid statute (forced) labour; or by statute labour fed from Government granaries. In Lower Sind, Zamindars compounded for their responsibility by paying a certain water-rate, out of the proceeds of which the work was done by hired labourers. In this connection Postans observes that if the Mirs made themselves responsible for the clearance they charged a certain additional rate from the cultivator using the canal; while if, as was generally the case, the zamindar or cultivator did the work, he obtained a certain allowance in reduction for the same in settling his annual accounts. This latter practice survives to-day in the shape of "karia rebates" on the Barrage canals.

After the work was done, some kind of measurement by parties nominally independent of the excavators was done, and calculations made for the Mirs' information. Frere justly observes that they could check gross impositions by means which are only at the command of native chiefs who know the people, and so possess indirect means of knowing whether their agents were growing unduly rich in their service; and that when they had reason to believe this, they would not be too scrupulous in their means to make them disgorge. There was, moreover, an infinite variety in details of payment and procedure which could only be learnt by long experience. This made the task of the British conquerors peculiarly difficult: it was at first intended to carry on the native system, but few of Napier's men had any experience in the task of administering a newly acquired province, which has proved difficult enough in parts of India where customary rights are well defined and a village system ready to hand. Moreover, the men who really knew Sind—Eastwick, Postans and the other young Politicals, whom Napier held in indiscriminate loathing, as past or potential dictators to General Officers,—had been given their congé, while of his own men scarcely one even knew the language. Such few traces of customary procedure, as the Mirs' system of Government had left on record, were in general obliterated by the zeal of officers who had no experience of the value of such things in other parts of India.

But before discussing Napier's canal system some mention should be made of the work of the "Politicals" in this field. As under the various treaties the internal administration of the country was left entirely in the Mirs' hands, the British were not concerned with land revenue; but many of the canals were waterways which afforded convenient means of transport, and it was necessary if perhaps high-handed, to interfere to a certain extent to ensure that they were kept open. The Western Nara gave no trouble: not so the Sind Wah, which was also used for the conveyance of heavy stores from Sukkur to Shikarpur. This was the way by which John Jacob sent his battery "by water" in June 1839. In 1841-42 it was proposed, in order to simplify the unsatisfactory position at Shikarpur, and gain complete control over the advanced base of the British operations in Afghanistan, that the city and its adjoining lands should be made over to the British Government "in commutation of a certain

amount of cash tribute (!) from the Ameers," and while negotiations were in progress steps were taken to clear the Sind Wah. Postans was Assistant Political Agent in charge at Shikarpur at the time, and we may use his own words: "It was deemed politic or the general improvement of the districts to clear this canal, as well as another nearly as large; and in the course of sixty days under the superintendance of a British Engineer officer with about two thousand men this was done for a distance of nearly forty miles, so that for nine months of the year it was applicable to all purposes of fertility and even navigation! and the increase of revenue calculated by the Ameers' own officers to amount in one year to three times the sum expended.....as a proof of the Ameers' cunning or jealousy, however, it should be added that seeing the improvement our energy had occasioned they evaded the bargain of transfer of the district alluded to." While the proposed transfer was still on the tapis, Postans instructed Lieut. Terry to survey in detail the country north and north-east of Shikarpur, between the Desert in the north, the Sind Wah in the south, the river in the East and the Jagan road to the West. "....the greater part of which is, as you are aware, comparatively unknown to us." Terry was directed to devote special attention to all forms of canal. His report, dated 20th August 1841, is of considerable interest. The original object of the survey, he says, was to investigate the possibility of constructing a navigable canal from the Indus to Dhadar, proposed by Captain French (who, it may be observed, must have had singular ideas about the level of the country in question). Terry soon found that more practicable improvements could be made nearer home. He remarks: "though I have not yet completed the survey I have ridden over a sufficiently large portion of the country to satisfy myself that nearly every acre of these 600 square miles (between the Begari and the Sind Wah) is capable of the highest cultivation, were the great natural advantages of the country turned to proper account; such crops as even in its deplorably neglected condition the country does produce, are most luxuriant, and were the Scinde and Biggaree canals sufficiently deepened, and flood gates constructed at their mouths so as to retain their streams for even six months in the year, I am confident that what is now comparatively speaking a desert would soon become a garden, yielding a rich produce of grain, at least sufficient for the support of our troops in Scinde if not enough for exportation.

"I beg you will excuse my trespassing thus long on your attention, but I deem it my duty to bring to your notice the advantageous and hitherto unknown means of transport afforded this season by the Biggaree canal. At the height of the inundation the road from Sukkur to Shikarpore is impassable, and the cost of constructing a bund across the swamps was estimated by Major Waddington at Rs. 60,000. Were that sum expended on the clearance on the Biggaree canal, not only would the object be obtained, but an immense body of water thrown into a country, which suffers most severely from the want of it." He proceeds to describe its jungle-infested condition and to give details of its capabilities for navigation as an alternative route to the land journey from Sukkur to Janidero. In forwarding this report Postans laid stress on the importance of the Begari to the Burdeka and Jatoi tract "which must soon become our property" and the possibilities of greatly extending the cultivators dependent on it. However, it was left to John Jacob to carry out the work ten years later, when the British title to the country was by conquest and not negotiation.

The above shows that the active and scientific Politicals, whom Napier despised, were not only alive to the obvious possibilities of improving irrigation in Sind, but were

ready within their strictly limited scope to embark upon definite schemes, and carried into effect one simple improvement with great success. Terry's work seems to have been entirely forgotten, but other information collected by the Politicals for the information of the Supreme Government was put at Napier's disposal by Lord Ellenborough who writes to him on 4th June 1843, while the conquest was still incomplete, "I apprehend that the position in which Your Excellency now is, and the necessary defectiveness of your information, will render it impossible for you to proceed this season to reopen the ancient communications between the Indus and the Nara, so as to make that branch flow, as formerly, to the district of Omerkote. It is a subject however on which I feel much anxiety that no time should be lost, as I am sensible of the importance of affording the earliest possible proof to the people of Scinde of the advantage they will derive from being placed under an enlightened and beneficent Government. I know your Excellency participates in this sentiment, and I have no doubt that the particular subject to which I refer has already engaged your attention. If your Excellency has retained Lieutenants North and Stoddart you have two able officers at your disposal, but I think more might be advantageously employed in the surveys and investigation it may be necessary to make. I shall readily endeavour to select the very best men from all the Presidencies for the purpose of placing their sevices at your Excellency's disposal, on receiving from you an intimation of the extent of your wants in this department." Subsequently the Governor-General writes on the 16th June "——I have already written to Captain Baker of the Bengal Engineers (now Superintendent of the Delhi Canal) to propose to him that he should undertake the superintendence of the survey of the ancient water courses and canals of Sind. I hope he will be willing to undertake the duty, for which he is eminently qualified. I should propose to place under him several scientific officers, some of them found in our Survey Department, and a number of assistants.....I would have all at Kurrachee by the 15th November or earlier if you think they could go on duty earlier."

It is hardly necessary to oberve that the 1843 season was almost entirely lost, so far as any canal work was concerned. Napier had indeed ordered on the 20th April the clearance of all important canals at an estimated cost of Rs. 1,50,000; but the natural dislocation of the Mirs' administrative system, and the impossibility of re-organization until the turmoil died down, precluded any supervision over the work, which must have been carried out, when it was carried out at all, at the will and according to the means of such Zamindars as had little concern in the change of masters. The first report of Captain Pope as Collector of Upper Sind is illuminating : he was sent almost without instructions and without means, to take charge of a territory over 10,000 square miles in extent, and was plunged at once into a chaos of administrative problems, while the predatory Baluch tribes raided the country all around

Captain Baker duly arrived in Sind, and was directed to survey and report on the irrigational capabilities of the canals. He made an extensive tour of the province in the cold weather of 1843-44, beginning with an investigation of the Eastern Nara scheme. It was not till October 1844 that he produced his report on the canals West of the Indus in the Sukkur Collectorate. The Begari had been surveyed by Lieut. Maclagan in February, when Baker describes it as flowing with a small head of water for twenty eight miles, its total course being forty-eight. This water must have come in from the Sind Dhoro, though Baker ascribes it to percolation "about six miles below the head, by some source of supply unobserved at the time of surveying the canal"—an excusable error, as it was "narrow and both banks covered with very dense and high

jungle." He mentions that as its branch canals take off, the main channel appeared to have been filled in and made narrow to keep up the level of the diminished supply of water; and he foresaw great possibilities from clearnace. Some years later, Jacob found that zamindars interested in these branches had constructed groynes jutting out half across the main canal, with the object of scooping water into them ; and not all his persuasion, but only ocular demonstration, convinced them that with a properly modelled channel they received a good supply without the aid of these contrivances, so damaging to the interests of those further down stream. Baker advised the deepening of the "*dhandh*" of the Indus at the head of the canal, and its clearance for 14½ miles; additional width was needed, the amount to depend upon the demand for water. He also observes that a regulating head would be useful, should a safe locality be found for it.

Baker's general recommendations for the maintenance and improvement of canals were,

*First.*—All canals should be maintained at a depth which would allow the flow of water in the cold weather, both for drinking purposes as well as 'charkhi" cultivation.

*Secondly.*—Water guages should be erected near the heads, and at the separation of the main branches to give a guide for clearance.

*Thirdly.*—The reduction of the excessive number of branches would give a saving in the amount of water, but would have to be gone into carefully on the merits of each case.

It was in the season of 1844 that Napier formed his Canal Department. He had a great opportunity ; a virgin field to work upon, while for instruments Ellenborough was eager to give him "the very best men from all the Presidencies." But Napier's previous administrative experience, which stood him in such good stead when he organized the Police force for Sind, which was destined to become the model for the rest of India—his Cephalonia days afforded no light on irrigation engineering. It is easy to say that the old General should have sought and accepted advice—which he was constitutionally disinclined to do ; but in actual fact there was no one who had experience of irrigation on the vast scale that it was found in Sind by the British. Nowhere in India, if indeed throughout the world, was there a going concern of such magnitude, demanding such an amount of first class engineering talent, as in Sind.

At least Napier's principle of having a separate canal department was sound ; but after placing a good man at its head, he does not seem to have availed himself of Ellenborough's offer to supply him with an unlimited number of talented Assistants. Sind was naturally unpopular as a place to serve in, and the Governor refused to attempt to attract first-rate men by offering the necessary scale of remuneration. He was desperately anxious to make his conquest pay its way, but did not realise that the best means of doing so was to man the new department with an adequate number of well paid scientific officers. And it was not merely this mis-placed parsimony that influenced him. He seems to have inclined to the belief that the men who had shared with him in conquering Sind were fully capable of administering it. He writes in 1845 "why do I then take officers from their Corps for Civil employment in Scinde ? Because civil servants of the Company do not work, and as yet the revenue could not sustain

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their expenses. A civil servant turns up his nose at 700 rupees a month; a soldier jumps at it.....would it not also be hard to see high paid civil servants come to Scinde, and the men who won it remaining with comparatively low pay in the ranks?"

So the Superintendent was given as his assistants Officers ignorant of the rudiments of Civil Engineering, who naturally proved useless except so far as any European of good principles, intelligence and active habits could be useful. One of them was Richard Burton; and in consequence we are indebted to Napier's system for those fascinating works "*Falconry in the Indus Valley*" and "*Scinde or the Unhappy Valley.*" But while Burton exploited to the full the opportunity of extending his knowledge of Oriental life we have no reason to suppose that the Canal Department benefited particularly from his services as a surveyor. Indeed, Burton draws us an excellent picture of the ignorant Canal Assistant immeshed in the toils of Sindhi deceit in "*Falconry in the Indus Valley.*" His jagirdar friend makes merry at the expense of a young officer who took elaborate measurements to ascertain why a canal would not flow properly, when the real cause was its periodical diversion by some acquisitive landowners in its upper reaches. And in more serious mood, in "*The Unhappy Valley*" he observes, with reference to the work of Canal clearance, "A European officer, it is true, superintends each district. But he has, probably, 300 canals to look after, and by the condition of his nature he cannot be ubiquitous. The evil result of the natives' indolence is that a bed thirty feet broad will, in the course of a few years contract to half its original dimensions, till at last a deep cunette measurable by inches is all that remains of the canal, the rest of it becoming a foot path for travellers human and bestial. The tail of the channel, of course, shrinks miserably in length, because the trunk has not been sufficiently excavated, probably an inch having been gained upon every mile of sole. When there is water in the bed, some noble feoffee will take the liberty of throwing embankments across it, so as to monopolise the produce of it for his Persian wheels. By abundant activity and exertion, the European overseer will sometimes discover a flagrant abuse; such as a canal reported cleared out, but never touched: at the same time, the amount of undiscovered rascality, small, but by degrees becoming uncomfortably great, is amply sufficient to hinder the improvement of the country."

Napier was perhaps right to hurry slowly, but Colonel Scott, who succeeded Baker as Superintendent of the department, found by bitter experience that parsimony defeated its own object. He writes "It may fairly be said that the whole system of canals in Sind is one of makeshifts and expedients to save some present expense without the slightest consideration of the extreme inconvenience and positive loss incurred in consequence of this immediate saving." The Governor was strongly impressed with the villainy of the Kardars, who had been the Mirs' agents in clearling canals; and in his desire to reduce their scope for mischief he went to the other extreme of divorcing absolutely the Canal Department from the local Revenue authorities, after 1846. So a Collector, who had got to know his district, and what work in maintenance of the canals had been found necessary under the Mirs, was liable to find his cultivators at the mercy of ignorant young men seconded from infantry regiments. Hugo James observes that the inhabitants dependent on the Shahji and and Dateji Kurs had emigrated, as these were not even partially cleared; he had received numerous complaints on the subject "but as the Canal Department is so entirely separate from the Collectorate I could do nothing but hold out hopes to the petitioners, who could not understand why works being carried on on other canals should prevent the repair of their own; they, too, who were forced to furnish statute labour for the clearings, from which they derived no benefit."

The Superintendent was, under Napier's organization, not only charged with the design and superintendence of all works requiring scientific ability, but with their execution too; and the vast extent of country rendered his task impossible. The work on canals in Sind at this period, and for many years afterwards. can be divided into three main classes. First, the laying down of the line of a new canal; the policy of cutting a new branch or clearing an old one, of cutting a new mouth or erecting a bund:—matters which require engineering skill of the highest order, and also experience. Secondly, the details and general superintendence of such works, demanding the ordinary training of an executive officer, and a large number of them, on account of the shortness of the working season: and thirdly, the actual execution of the works, requiring Native agency working in its own way under strict supervision.

The first two of these classes of work obviously necessitated a separate Canal Department, and equally obviously a large staff of properly trained scientific officers.

Colonel Scott observed, with reference to the first, that British Government could not rely, as the Mirs did, and often with success, on the mere statement of a man who says he can *see* a difference in level, almost imperceptible to our instruments—"We have to justify our expenditure to a Government 1000 miles away"—and the Native way of reducing the speed of flow by giving a tortuous course must be replaced by a system of 'Falls'. (the first mention of this device in relation to Sind irrigation that I have been able to trace).

One problem, perennial in Sind, which demands the highest qualities of skill and insight in an Engineer for its economic solution arises from the vagaries of the Indus. The various "Lets"—overflows of the river by regular and well defined paths through low lying country, especially on the right bank,—will soon be forgotten, though any one who was in Upper Sind in 1930 should preserve a vivid recollection of their extent and destructiveness. The flood which then advanced within a mile of Shikarpur, after the destruction of the Adur Takio loop band, was a regular visitor in the days before bunds were; and Napier determined to curb it. His motives were in the main the preservation of direct land communication between Sukkur and Shikarpur, and of the health of the troops cantoned at these two places, albeit at the loss of the abundant *bosi rabi* cultivation which covered the tract on the subsidence of the waters. He writes to his brother William, giving a sketch map of the area in question, "I have just finished a great work. During the inundation every year the Indus passed in at A to the plain B. But between D and C the levels are below the bed of the river; hence the water lodges in B, and in all the nullahs n, n, n." (query: the Ganang Wah and Sind Wah ?) "B. is about three miles broad and twenty-five long: the dotted lines mark the extent of inundation, and nullahs add five or six miles on either side, of stayed water.

"When the inundation subsides, all this expanse is left still under water, which soon putrifies under the sun during August, but becomes dry towards the end of November. When the wind blows from the S. E. Shikarpoor becomes sickly: when from the N. W., Sukkur becomes sickly. My design, therefore, founded on the reports of Scott and Baker, Company's engineers, was to cut off the Indus from B, and since March (1845) Scott has done it by a bank A. C. D. some thrity miles long. I await the result, for by this time the inundation is at its height—Loss of revenue will ensue certainly, for two years or three; but health will be gained for the troops; and also for the villages which cover the vast plain thus cut off, and which will suffer some loss of produce before the

inhabitants will dig wells to supply the want of inundation : they are very angry, because they laugh at the idea of health gained by human means— with them all is fate. There is no doubt of the whole tract becoming healthy, or I have made a great mistake. To remedy the want of inundation I have ordered sluice-gates, to let in small quantities of water for cultivation, which will not make a marsh. These two cantonments were becoming so deadly that some greater remedy was absolutely necessary, and this is mine. The rich proprietors threaten to cut the bank, but I have placed cavalry guards, and we shall see : the work fed all the poor folks— labour and high wages."

Jacob poured scorn on this scheme, for the same reason that the local inhabitants opposed it—viz. that it deprived a large tract of water. But if the sluices referred to by Napier had been properly disposed, and the "nullahs" properly canalized, the effect would have been to convert a *bosi rabi* area into one served by *moki* and *charkhi*, within the protecting line of bund : and I think it may with all its imerfectionsbe considered the precursor of the modern policy of limiting as far as posible the annual variations of the Indus.

Beyond this the achievements of the Canal Department in the first three years of its working were practically limited to surveys and the collection of information. The Ali Bahar canal indeed, which had been left unfinished by Mir Nasir Khan, was extended under the directions of Mr. McLeod ; but as reported by Mr. Pringle, the first Commissioner-in-Sind, in December 1847, "the proceedings of the department have hitherto been rather of an experimental and desultory character, and directed not exclusively to the subject of irrigation, but to surveys and engineering projects generally. On these, it may be presumed, a considerable amount of useful information has been collected, although no very practical use has yet been made of it. It was not till last season that the labours of the department began to be more exclusively directed to the canals, and many difficulties have occurred to retard their progress."

It should be observed that the clearance of canals continued to be performed by the Revenue Department through the Kardars during the first three years of the Canal department's working.

Napier's own statement of his views on irrigation written in July 1846 is of interest as showing that he intended ultimately to introduce a regulating system in the canals.

"One of my great outlays has been that of thoroughly cleansing the canals. This has hitherto been done by the Kardars at a wild cheating rate, to which no check could be put. Now, from the first I have been forming a canal department ; it has cost much pain and money, but has taken surveys and levels all over Scinde for the thorough organization of canals and irrigation of the land. In October it will take the whole of the canals out of the hands of the Kardars....." He proceeds to comment on the effects of the sudden premature falls of the river— "Now with our system of sluices, all the great feeders will become long tanks, plentifully supplying the grain by little field drains till ripe, when the sluices will be opened and the canals cleared out. The water now spreads wildly over the whole surface of the land, and when that happens to be a low level it lies until the sun of August and September dries up the swamp ; then a rich mixed vegetation of grain and weeds springs up, with a full crop of fever ! The people think I am going to starve them in such parts, but will soon find out that they have a command of water and little

fever. In the higher grounds, where they now cannot keep the water, or do not get it at all, they see the good of the new plan; and that if water cannot be brought upon their ground direct, it will still be brought so close that by the aid of the Persian wheels they can get plenty. I thus hope next year to see the first action, the A B C of my sluice system begun, and in ten or twenty years it will be thoroughly understood, and make Scinde a vast farm for cotton, indigo and wheat, with various other grains and timber also."—Granting the old Governor credit for his good intentions, his ideas are curiously crude: December 25th 1846. "My canal department is now also fairly at work. A nephew of General Nott is at the head of it, and I am very fond of him. He is extremely clever and very hard working, but runs ahead, fancying he can make all his work better, and in fact he does, but thus makes a perfect plan the first object and cutting canals the secondary, which is putting the cart before the horse." It would seem, on the contrary, that careful survey and scientific planning and co-ordination of projects were very necessary preliminaries to the execution of works.

By making the head of the department responsible for the supervision of the latter, Napier prevented the Superintendent from devoting adequate time to the proper functions of a Chief Engineer; and after his departure, Scott pointed out that a system which kept the scientific head of the Department confined to one spot, engaged on such duties as engaging canal diggers and feeding them, disabled him from attending to higher duties requiring leisure and extensive annual tours. Scott was however compelled to acquiesce in the continuance of the hand-to-mouth expedients which he disliked, and we find him writing in September 1846, not only advocating the continuance of the existing relation between the Kardar and Irrigation officer, but proposing a system in which both Deputy Collectors and Kardars should have opportunity to interfere with the Canal Department—a counsel of despair with which Napier did not agree.

Reference has already been made to the complaint of Lieut. James, Deputy Collector of Chandoka, of the lack of liaison between the Revenue and Canal Departments. After the first year of clearance performed by the latter, the season of 1847 the general opinion of revenue officers was that this work had been better done by the old agency. Major Goldney, the Collector of Shikarpur, remarks "Deferentially, I am of opinion that the greater part of the excavations annually required to remove the silt accumulated during the inundations may be safely and economically left to the Revenue Officers, and that the efforts and expenditure of the Canal Department be concentrated on works where science and money are required.

"For instance, the 'Nara', a branch of the Indus, never I suspect cleared of one cubic foot of sand by human efforts, is becoming in places silted up: let the whole weight of Major Scott's establishment in Upper Sind be set to work, if on survey this canal be found in need, and susceptible of improvement; and I will pledge myself to clear the three other canals with the ordinary establishment of my districts. In fact I am inclined to consider that under ordinary circumstances and with ordinary diligence, the supply of water depends not on scientific conduct of the excavations, but on opening a good wide mouth to allow the river to flow in freely when at the requisite height, and on the inundation itself being copious:—as a proof, for 1844, 1845 and 1846 the canals were cleared by the Revenue Department and we had water; this year the utmost zeal was displayed by the Canal Department and we had comparatively none; the simple reason will be found in the water guages of the Indus,

by which it will appear that its highest rise was far below the average of the three preceding years; which no science can remedy.

"Any improvement resulting from European Science and expenditure will I think be more likely to do good if based rather on the principle of carrying to perfection the indigenous system under which these canals have been formed and which has worked indifferently well hitherto, than upon the idea of superseding them altogether and bringing expensive attainments, superintendence and establishments to bear on the mere digging out a long ditch."

—Shades of the Barrage System!

Mr. Pringle, the Commissioner-in-Sind, in a description of the system of administration of the province as he found it, drawn up for the benefit of Mr. Clerk, the Governor of Bombay, who was about to visit Sind, remarks in regard to the Canal Department after summing up its proceedings:—

"I am not prepared to say whether it may be expedient eventually to maintain this department on its present large and costly scale, but, if it be found to be efficient for the attainment of its objects, its importance to the interests of the Province can hardly be overrated. I would at all events recommend that no alteration should be attempted at present, and that the consideration of Major Scott's views and plans should be deferred until the experience of another season may enable him to bring them to greater maturity."

Sir George Clerk in the course of his short visit pointed out the capital defect in the organization of the department mentioned above; *viz.*, the tying down of the Superintendent to executive work: this did not necessarily imply objection to the department in its sphere of scientific supervision, but simply as a wrong instrument to employ on the actual execution of canal digging. It seems unfortunate to have been taken for granted that the Governor of Bombay conndemned the system root and branch; perhaps the hostility of the Collectors and their establishments found a sympathetic ear in Captain Goldsmid, his clever secretary; then the Military Board—that bugbear alike of Napier and Jacob "did not deem its maintenance essential to the proper management of the canals" and the Department was finally abolished in the season of 1848-49.

Napier, in his retirement in England, was exasperated, and with good cause, though he was probably incorrect in ascribing the reasons for the abolition of one of his favourite creations solely to his own unpopularity in Bombay. Admittedly its material achievements had been slight, giving little visible return for the large sums of money sunk in it; but we have good reason to believe that Scott, though hampered by the defects in the department's organization, was methodically preparing the ground for co-ordinated development of the canal system, when the blow fell. Captain Craufurd, his successor, foretold in 1849 that all the information collected by the department at the cost of so much time and highly paid labour would be lost for all practical purposes, and he was right.

The canals were now placed in charge of the Collectors under the general control of the Commissioner, and extra Deputy Collectors were attached to the former for this duty, two being given to Hyderabad and one each to Shikarpur and Karachi. Craufurd in his report of April 1849 pleaded that at least these Deputies should be entrusted

with Canal work exclusively, as "Revenue officers always have their hands full" and he explained vividly the numerous ways in which peculation can go on under desultory supervision. But with the exception of the Uncovenanted Assistant to the Collector of Karachi, these officers had had no special training for this duty, and they proved of little use except in increasing the Collector's means of general supervision. One of the cardinal mistakes in Napier's organization of the Canal Department was thus repeated, while technical ignorance among the subordinates could no longer be corrected by science at the head. Such co-ordination in policy as had been beginning to make itself felt vanished; the uneconomic makeshift was the limit of canal officers' powers, and their ordinary goal efficient maintenance.

Even this was not in fact achieved. There was a great variety of procedure in the different districts, but the results were much the same. In Shikarpur, the clearance was done by statute labour partially paid by grain rations, sufficient for daily food but not a daily wage. The system was not inefficient when attended to by the Collector and his deputies, as most of the people employed had a direct interest in the clearance, while their remuneration was not enough to make delay profitable. But superintendence could only be partial; the system was very unequal in operation and frequently most oppressive. Scott had pointed out the difficulty and danger in making any precipitate alteration in the system of statute labour, though he thought that much might be done to mitigate its more prominent evils. With these opinions Mr. Frere, whose administration of the province began in January 1851, at first agreed, though it was not long before correspondence with Jacob modified his views.

In Hyderabad the Collector, Captain Rathborne, introduced a settlement in 1850, which provided for the execution of canal clearance by the lessees of "Parganahs." It was supposed that the lessees would have enough direct interest in the work to do it well, and that the superintendence of the Collector and his Deputies would provide the only check necessary. But these expectations were not fulfilled; the lessees pocketed the money without doing anything, or else paid it over to the Collector to meet instalments on crops which had failed. The result was all-round deterioration of the canals. In Karachi it was thought that the special training and experience gained under Col. Scott by the Uncovenanted Deputy Collector who was put in charge of the canals would obviate defects found elsewhere; but after a few years it was plain that constant supervision by properly qualified engineers was as much needed as in the other districts.

Meanwhile the efforts of individual officers stood out above the general level of inefficiency and laissez-faire. St. Clair Ford, the Deputy Collector of Larkana obtained sanction to cut a new mouth to the Western Nara, and to widening the mouth of the Ghar canal; John Jacob enlarged the Begari and Nur Wah, giving them a proper section, and cut a feeder to his new town of Jacobabad: and Lieutenant Fife prepared estimates and designs for the supply channel to the Eastern Nara, thus giving realisation to Ellenborough's and Napier's vague project. But these did not make up for the general lack of system, knowledge and enterprise. The results of the working of the canals under the Collectors were, not only that the information compiled by Napier's Department was thrown away, but that no accurate statistics on essential points with regard to canals were subsequently maintained, so that it became impossible to tell except by personal observation and local enquiry each year

whether any canal had improved or deteriorated under British management. Canal Administration had in fact gone back to the same point at which the Canal Department had started. Nor was there any effectual check on the Kardars' expenditure on clearance, and there was very good reason to suppose that the sums actually disbursed by them fell far short of what was required to keep the canals in reasonably good order. This deterioration was particularly noticeable in Hyderabad district. Moreover, the estimates for clearance made by the Collectors without scientific guidance became little more than averages of expenditure in former years, without reference to the particular circumstances of the season after which they were framed. On the other hand, the Collectors' instructions to their Deputies for superintendence of canals were so elaborate as to be impossible of performance, together with the other work which, as Craufurd shrewdly surmised, the Collectors began to delegate to them. Not only was the season for inspection short, but the system afforded great facilities to corrupt subordinates to draw off attention from work fraudulently mismanaged for sufficiently long to hide the traces of it by admitting water.

Frere was the type of administrator whom nothing escapes, and by 1853 he had formed his own conclusions on the working of the canals under the Collectors, and the necessary remedies; and found them coincide with the opinion independently arrived at by Major Blois Turner, a military engineer who was till then concerned with roads and buildings.

Turner was ordered to frame a scheme for a new system; and it received the sanction of Government in 1854. It may be summarised as follows :—

First, the procuring, superintending and paying of labourers was left to the Kardars, as before.

Secondly, a separate agency was established for ascertaining what work needed to be done each year to enforce obedience to instructions, check fraud, compile information, and make periodical reports. This agency was composed of, first, four Assistants to Collectors for canal duties only : secondly, a permanent establishment of Native Superintendents under them; thirdly an establishment for undertaking permanent improvements to canals, including all works requiring high professional and scientific acquirements, to be under Executive Engineers of Divisions, each of whom was given one or more Assistants and Assistant Surveyors for special duty; and finally a Superintending Engineer to be head of the Department, who was to report on its working annually to the Commissioner.

Frere wanted the technical side of the department to be entirely independent of the Executive Engineers of Divisions, who were overworked in their charges of roads and buildings, particularly in Karachi; but he agreed to use the existing means.

The result was that the annual cost of the new department was very moderate. The Canal establishment under the Executive Engineers cost Rs. 27,000; that under the Collectors Rs. 49,000 per annum; while the allowances and establishment for the Consulting Engineer or Superintending Engineer came to Rs. 11,000. The total cost was Rs. 77,500 per annum, exclusive of the Superintendent's allowance of Rs. 700 per mensem, which he received in addition to his military allowances.

Frere observed that this amount bore a small proportion to that disbursed annually with little or no real check before or after; and that under the proposed system there would be an effective after-check and accumulation of knowledge.

He proposed moreover to impose an additional assessment which would more than cover this expenditure, in the shape of a water-rate, observing that "of late years the distinction between the *Hakab* or water tax and the ordinary Government assessment has often been neglected."

The technical complications of this question, though of academic interest to the Revenue and Irrigation Officer, are such that it is not expedient to discuss them in this paper. Suffice it that it was connected with clearance contracts and that on certain canals Hakabo distinct from Jagir hakabo was separately shown for *raiati* lands. But the tendency was from the first towards simplification; under Rathbone's leases in Hyderabad, and Jacob's settlement in Burdika, assessments substituting a single cash tax for the old *batai*, were adopted.

The canals in Sind remainded under the system of administration introduced by Frere until the establishment of the modern Public Works Department, and some notable schemes were executed during this period. Individuals of genius did not find themselves unduly fettered by it, and it is only necessary to mention the extension of the Bogari to Garhi Khairo, planned by Jacob and carried by Merewether in1856 : the Ford Wah, named after St. Clair Ford, giving a second head to the Ghar, in the same year; and the Nara Supply Channel, carried out by Col. Fife and opened in 1859. Jacob projected and began what is now known as the Desert Canal, while the Mithrau was designed in 1859. Fife also projected a great canal from Sukkur on the left bank of the Indus, a dream which has found realisation in the Barrage Rohri Canal. While acting as Commissioner-in-Sind, in 1856, Jacob finally abolished statute or forced labour for canal clearance.

During the same period the province, and more particularly Upper Sind, was being covered by a network of bridged roads, at which those of us moderns who must go everywhere at a high speed by car are at liberty to sneer, but which stimulated cart traffic to an astonishing extent. Lord Dalhousie was an assiduous promoter of these schemes up till his departure in 1856; and though Jacob and Frere were hampered by the red tape of Military Boards a d Finance Departments, their energy triumphed over all petty obstacles. The net land revenue of the province rose from 21 lakhs in 1853-54 to 31 lakhs as the average of the six years from 1856-57 to 1861-62; a sufficient testimony to the efficiency of Frere's system of canal administration. The present Public Works Department received a noble heritage, which it has nobly developed and should not easily forget its debt to its predecessors.

# EXTRACTS RELATING TO SIND.

## FROM

# Annual Bibliography of Indian Archaeology.

FROM 1926 TO 1934. VOL. I TO IX

The annual Bibliography of Indian Archaeology is published by the Kern Institute, Leyden, Holland, with the aid of the Government of Netherlands India, the Imperial Government of India, and several leading Rulers in India and the Government of Ceylon.

The first volume was published in 1926 and ninth volume for 1934 is published upto date. The next issue of the Bibliography will come out in May 1937.

The Institute has kindly put the Sind Historical Society on their exchange list.

The annual subscription is Rupees six for membership; and a member gets the Bibliography free.

It is hoped some members of our Society will join the Institute.

I have copied out all that relates to Sind from the first nine volumes, and it is hoped that the extracts will be useful and interesting to the Members.

N. M. BILLIMORIA.

# ANNUAL BIBLIOGRAPHY OF INDIAN ARCHAEOLOGY.

## For The Year 1926.

### EXTRACTS RELATING TO SIND.

EXCAVATIONS IN SIND.

In India proper antiquarian interest during the last three or four years was focussed primarily on the excavations conducted by Sir John Marshall and his assistants in the Indus country. These explorations have brought to light the extensive remains of a very early civilisation, far more remote in date than any dateable antiquities which had hitherto been unearthed in Indian soil. It is not too much to say that these startling discoveries have entirely changed the aspect of Indian archaeology. It will be remembered that Indian history, as far as it can be said to be chronologically fixed, begins only from the campaign of Alexander the Great in the Punjab and from the rise of the Maurya dynasty in Magadha. The earliest dateable epigraphs (2) Indian aerchaeology can boast of the famous edicts of Asoka belong to the middle of the 3rd century B.C., a time which in the eyes of an Egyptologist or Assyriologist must be qualified as frankly modern. The remains, however, now unearthed in the Indus country are believed to carry us back to 3000 B.C.

We may perhaps be excused for recalling the circumstances which have led to the remarkable discovery of this unknown phase of Indian culture. It was Sir Alexander Cunningham (3) that great pioneer of Indian archaelogy, who first drew attention to an ancient site near Harappa, a small village situated on the railway line halfway between Lahore and Multan. This site—"the most extensive of all the old sites along the banks of the Ravi"—he described as a "continuous line of mounds about 3500 feet in length sometimes rising to 60 feet in height and covering an area of nearly 2½ miles in circuit which must mark the place of a ruined city." It was not however on account of its extent that the site of Harappa drew the attention of archaeologists, but because it was the find-place of engraved seals of a very peculiar type unlike anything of the kind found in India.

Three specimens of these Harappa seals which are now preserved in the British Museum were described by the late Dr. J. P. Fleet (4) the well-known authority on Indian epigraphy. Two of them show the effigy of a one-horned bull, very different from the familiar humped bull of India. The elongated body rests on short legs; the muscles round the neck are strongly marked. Moreover the seals are engraved with an inscription in characters absolutely different from the earliest known scripts of India. The third seal in the British Museum bears only an inscription in similar characters. Dr. Fleet did not attempt to decipher the mysterious epigraphs. He published them " in the hope that recent discoveries in various directions might give a clue to the true nature of the characters and the meaning of them."

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*1. Arch. Survey of India, Annual Report, 1923-24, pp. 47-54, places XVII.—XXI.

2. A fragmentary Aramaic inscription found by Marshall on the site of Taxilla in the Panjab was ascribed by Cowley to the middle of the 4th century B.C. Cf. J.R.A.S. for 1915, pp. 342-47.

3. Arch. Survey Report, Vol. V (1875), pp. 105-8, plates XXXIII, Fig. 1. the Ravi is the ancient Iravati.

4. J. R. A. S. for 1912,

During the cold season of 1920-21 some trial excavations were carried out at Harappa by Rai Bahadur D. R. Sahni which resulted in the recovery of more seals of the type referred to above. Unfortunately the site of Harappa has suffered irreparable damage at the hands of railway contractors at the time that the railway from Lahore to Multan was under construction.

It was in the year 1922 that Mr. R. D. Banerji undertook the exploration of a Buddhist stupa at a locality known as Mohenjo-daro, in the Larkana district of Sind. Here too at a distance of some 400 miles from Harappa, there is vast expanse of artificial mounds, evidently marking the site of a once flourishing city situated along a new dry bed of the river Indus, from the highest of these mounds which once must have formed an island in the river there rose the Buddhist stupa, surrounded by subsidiary buildings apparently belonging to the second century A.D. On further exploration this mound proved to be raised on much earlier remains—brick buildings which at other parts of the site appeared close to the surface. Among these a great variety of antiquities were found: pottery both painted and plain; terra-cottas; toys; bangles of blue glass, paste and shell, new types of coins or tokens; knives and cores of chert; dice and chessmen; a remarkable series of stone rings; and most important of all, a number of engraved and inscribed seals similar in type to those found at Harappa (plates IVb and V).

"Of all those antiquities" Sir John Marshall wrote (1) "the most valuable are the stone seals, not only because they are inscribed, with legends of an unknown pictographic script, but because the figures engraved on them, and the style of the engraving, are different from anything of the kind hitherto met with in Indian art. Some of them are of steatite, others of ivory, and others of stone and paste. In shape most are square, and provided at the back with a boss pierced with a small hole for suspension. The animals engraved on them are in some instances bulls; in others, unicorns; but it is to be observed that neither the Indian humped bull nor the water-buffalo occur among them."

In the year 1924-25, preliminary excavations were made at Mohenjo-daro by Mr. K. N. Dikshit. In the summer of 1925 Mr. H. Hargreaves was deputed to Baluchistan in order to explore certain mounds at a locality called Nal in the Jhalawan district. The result of this expedition was the discovery of a number of burials of the Chalcolithic Age and of a fine series of painted pottery, and of implements of copper and stone.

Thanks to the sympathetic interest of the Government of India and the generous support of the Legislative Assembly, Sir John Marshall was enabled to undertake explorations on a much vaster scale at Mohenjo-daro in the cold season of 1925-26. From the preliminary account of these excavations (2) we may quote a few particulars.

The site of Mohenjo-daro represents an extensive city the central part of which, covering an area of about a square mile, takes the form of rolling mounds of brick debris some 30 feet in height dominated by a higher mound at its north-western corner. This mound which was capped by the Buddhist stupa referred to above appears to conceal the remains of the principal temple of the ancient city.

1. The Illustrated London News, Sept. 20, 1924, p. 528.
2. The Illustrated London News, February 27, pp. 345ff., and March 6, 1926, pp. 398ff. and The Times, February 26 1926, pp. 15f and 18.

The great majority of the buildings appear to be "ordinary dwelling-houses or shops, which for the most part are divided into good-sized rooms, furnished with their own wells and bathrooms, floored over with brick, and provided with covered drains connected with larger drains in the side streets. The existence of these roomy and well built houses, and the relatively high degree of luxury denoted by their elaborate systems of drainage, as well as by the character of many of the smaller antiquities found within, seem to betoken a social condition of the people much in advance of what was then prevailing in Mesopotamia or Egypt" (Plates I and II).

We are greatly indebted to Sir John Marshall for his courtesy in allowing us to reproduce here a number of excellent photographs relating to his explorations at Mohenjo-daro. One of the most striking finds made is "that two statues of bearded men, one carved out of alabaster, the other of limestone, finished with a veneer of fine white paste, its eyes inlaid with shell, and the patterning of its robe picked out in red ochre." (Plate IIIb).

Our plate IIIc will give an idea of the great excellence and variety of the pottery which has come to light in the course of these excavations.

Buried beneath the floors of the houses were found a number of copper vessels and utensils, one of the larger vessels containing a valuable collection of jewellery. This collection comprises "gold and silver bangles, ear-ornaments, gold netting needles, charms, and two particularly handsome necklaces or girdles (kanchi) made of tubular beads of carnelian with terminals and smaller beads of copper gilt." (Plate IVa).

"What is particularly striking" Sir John Marshall writes "and not a little anomalous about these finds is the great disparity in the quality of their technique... Rough flakes of chert for example, which served as knives and scrapers have been found in hundreds all over the site, and these utensils are as crude as such objects could well-nigh be. But mingled with them and contrasting strongly with their primitive appearance, are finely made objects of gold and blue faience and exquisitely engraved seals, such as could only have been turned out by people possessed of marked artistic ability as well as great technical skill; while the construction of the buildings themselves is far superior to anything of the kind in later India. Iron, of course, was unknown in this early age, but gold, silver, copper and lead were all being worked, and the discovery of some specimens of cinnabar suggests that the indo-Sumerians knew how to extract mercury from this mineral.

In the course of Sir John Marshall's excavations specimens of the mysterious "Harappa Seals" were found in considerable numbers. One bears the effigy of a Brahmani bull "which in the stylish treatment of the dewlap, the modelling of the muscles; and the slenderness of the hoofs, recalls the best glyptic efforts of Mycenaen Greece." Another specimen shows a stylicized asvattha tree (Ficus Religiosa) with twin heads of some horned animal springing from its trunk. Others again are inscribed with pictographic characters alone. (Plate IVb and V).

The pictographic script employed in these documents still baffles decipherment. The claim made by Mr. L. A. Waddell in some recent publications (1) of having solved

1. L. A. Waddell, The Indo Sumerian Seals deciphered. Discovering Sumerians of Indus Valley as Phoenicians, Barats, Goths, and famous Vedic Aryans 3100-2300 B.C. London 1925 (Cf. J. R. A. S. for 1925 pp. 797 ff.) The same author contributed a paper under the title Dynasty of Haryashawa of the Sumerian Uruash (Ur-nina) as Imperial Kings of Kish, Erek and Lagash in Mesopotamia about 3100-2900 B.C. to the Asiatic Review of October, 1926.

the enigma has found no acceptance among competent scholars. We may refer the reader to the extracts from reviews quoted in our "Bibliography." There is however no reason to despair. Human ingenuity has succeeded in finding the key to other "unknown" scripts, such as the hieroglyphs and the cuneiform.

What name are we to apply to the ancient civilisation which the sandy plains of the Indus have revealed ? It has become the fashion now to call it "Indo-Sumerian." The application, it is true has some justification in a find made in 1923 in the course of the excavations of the Oxford and Field Museum Expedition at Kish in Mesopotamia. It consists of a steatite stamp-seal which was found in the foundations of a chamber at a depth of nearly 2 metres below the surface of the ground on the north east side of the ziggurut, or temple tower, of the war-god Ilbaba (the mound locally known as Tell Ahaimir). This seal which shows the figure of a long horned bull, and is said to be of early Sumerian date, is clearly the same type as the seals found at Harappa and Mohenjo-daro (2).

On the other hand, it should be remembered that after the first discoveries in Sind had become known, Professor A. W. Sayce the distinguished Assyriologist, expressed himself in the following terms (3). "The inscribed "seals" or plaques found at Harappa and Mohenjo-daro are practically identical with the Proto-Elamite 'tablettes de comptabilite' discovered by De Morgan at Susa. The form and size of the plaques are the same, the 'unicorns' are the same, and the pictographs and numerals are also the same. The identity is such that the 'seals' and tablets might have come from the same hand."

What more precise date regarding the unknown culture of the Indus country further explorations may bring, no one can tell. This much is certain that the excavations of Sir John Marshall have proved the existence of very early relations, say of about 3,000 B.C. between India and Mesopotamia. The probability of such relations had, indeed, been surmised long ago by students of comparative religion and mythology. We need only quote the myth of the Deluge. But Harappa and Mohenjo-daro have yielded the first tangible proofs of a cultural contact between those two great civilizations of Antiquity.

We are authorised by Sir John Marshall to announce his intention of bringing out a three-volume monograph which will include a full account of all excavations carried out at Mohenjo-daro since 1922-23, and which will be profusely illustrated with photographs, plans of buildings, and drawings of minor objects of outstanding interest. Such a publication, it is hardly necessary to add, will be heartily welcomed; for it has been rightly said that no such epoch-making discoveries have ever fallen to the lot of an archaeologist in India. "At a single bound," Sir John Marshall wrote, "they have taken back our knowledge of Indian Civilization some 3,000 years and have established the fact that in the 3rd millenium before Christ and even before that the peoples of the Punjab and Sind were living in well-built cities and were in possession of a relatively mature culture with a high standard of art and craftsmanship and a developed system of pictographic writing."

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2. It was published by Mr. Ernest Mackay in J.R.A.S. for 1925, pp. 697ff. plate X.

3. The Illustrated London News, September 27, 1924, p. 566. Another competent scholar, Prof. Dr. Fr. W. Freiherr von Bissing has arrived at the same conclusion. See his paper ; Ein vor etwa 15 Jahren eroworbenes ("Haappa Siegel", Archiv fur Orient forschung, Vol. IV January-February 1927) pp. 21?.

## 1927.

THE PRE-HISTORIC CIVILIZATION OF THE INDUS. (Extract from a paper by Sir John Marshall, Kt., C.I.E., M.A., Litt., D., F.S.A., Director General of Archaeology in India). Published in extenso and with numerous illustrations in the Illustrated London News, January 7 and 14, 1928.

The remains now laid bare at Mohenjo-daro, cover an area of more than 13 acres and belong to the three latest cities on the site. The best built structures are those of the third city; the poorest of the first. All, however, are built of well burnt brick usually laid in mud. but occasionally in gypsum mortar, with foundations and infillings of sun-dried brick. Of the various groups of buildings that have been exposed the most striking are focussed round about a lofty eminence near the north-west corner of the city, which in after times was crowned with a Buddhist stupa. Beneath this stupa there are reasons for believing that the chief temple of the city is located, and it is probable that the structures grouped around it are all of a religious or quasi-religious character. Outstanding among them is an imposing edifice containing a large bath or tank. (For a view of the "tank" building see Annual Bibliography for the year 1926, plate II). 39 feet in length by 23 feet in breadth, and sunk 8 feet below the floor level. On its four sides is a boldly fenestrated corridor, with a platform in front and halls or small chambers behind. The outer wall, which is more than 6 feet in thickness with a pronounced batter on the outside was pierced by two large entrances on the south and smaller ones on the east and north. Of the chambers ranged along the east side of the building the middle one is occupied by a large well from which the bath could be fed. At either end of the bath is a descending flight of steps with a shallow landing at their foot. Like the bath room floors of the private houses the floor is laid in finely jointed brick-on-edge and remarkable care and ingenuity has been exercised in the construction of the surrounding walls. These walls which are nearly ten feet in thickness are made up of three sections; the inner and outer of burnt brick the infilling between them of sundried brick; but in order to render them completely watertight the brick work has been laid in gypsum mortar and the back of the inner wall coated with an inch thick layer of bitumen. Bitumen was also used for bedding the wooden planks with which steps were lined.

Apart from the above, the remains brought to light at Mohenjo-daro are for the most part private dwelling houses or shops (plate I) which tend to confirm more and more our earlier impression that the amenities of life enjoyed by the average citizen at Mohenjo-daro were far in advance of anything to be found at that time in Babylonia or on the banks of the Nile.

Owing to its close connection with the Sumerian civilisation of Mesopotamia the prehistoric civilisation revealed at Mohenjo-daro and Harappa has hitherto been designated by the name 'Indo-Sumerian.' With the progress of exploration, however, it has become evident that the connection with Mesopotamia was due, not to actual identity of culture, but to intimate commercial or other intercourse between the two countries. For this reason the term "Indo-Sumerian" has now been discarded and "Indus" adopted in its place.

The date of the buildings described is determined within tolerably narrow limits by the discovery of at Susa and several sites in Mesopotamia of typical Indian seals.

inscribed with Indian pictographic legends, in positions which leave no doubt that they belonged to the period before Sargon I—that is before about 2700 B.C. On another seal of the same pattern recently unearthed at Ur, the legend is in cunieform characters of about 2700 B. C. It may be inferred, therefore, that this class of Indian seal is to be assigned to the first half of the third millenium B.C. or earlier and in as much as seals of this class are associated with the three uppermost cities Mohenjo-daro, we may confidently fix the date of these cities between 3500 and 2500 B.C.

Taking everything into consideration, a period of six centuries may reasonably be allowed for the rise and fall of the three cities, and we shall probably not be far wrong, if we previously assign the first city to about 2700 B.C., the second city to about 3000 B.C., and the third city to about 3300 B.C.

Besides bread and milk, the food of the Indus people, appears to have included beef, mutton and pork; the flesh of tortoises, turtles and gharial; fresh fish from the Indus and dried fish imported from the sea coast. Evidence of these various articles of diet is furnished by bones—sometimes in a half burnt condition—found among the houses.

Among the domesticated animals were:—the humped Indian long-horned bull (bos Indicus) of which to judge by the frequency of the remains, large herds must have been maintained, the buffalo (bos babalus), a short-horned bull, the sheep, pig (sus cristatus); dog, horse and elephant. No trace has been found of either the camel or the cat. The horse in the Indus Valley was the small equus caballus, near akin to the Indian country bred. Of dogs, there are two very distinct breeds; one the canis familiaris, closely related to the common pariah, and the other remarkably like our present day mastiff.

The remains of wild animals are few, but among those frequently depicted on the seal-stones are the tiger, rhinoceros, and elephant, the presence of which may be taken as an indication that the climate was damper, and the vegatation more dense than at present. The lion, which prefers arid and sparsely covered country, does not occur.

Numerous spindel whorls in the debris of the houses attest the practice of spinning and weaving, and scraps of a fine woven cotton material have also been found. The Babylonian and Greek names of cotton (Sindhu and Sindon respectively) have always pointed to the Indus Valley as the home of cotton growing.

Male attire among the upper classes consisted of two garments; a skirt or kilt fastened round the waist, like the primitive Sumerian skirt, and a plain or patterned shawl which was drawn over the left and under the right shoulder, so as to leave the right arm free. Men wore short beards and whiskers, with the upper lip sometimes shaven, as in Sumer, sometimes not. Their hair was taken back from the forehead and coiled in a knot at the back of the head with a fillet to support it. The one and only head of a female statue that we possess shows the hair falling loose behind but whether this was the prevailing fashion or not is questionable. Among the lower classes, men apparently went naked, and women with a narrow loin cloth only, though there is one statuette of a dancing girl without even this garment (plate IId). Ornaments, however, were freely worn by all classes alike; necklaces and

finger-rings by both men and women; ear-rings, bangles, girdles, and anklets by the latter only.

The ornaments of the rich were of silver and gold or copper plated with gold, of blue faience, ivory, carnelian, jadiete, and multi-colour stones of various kinds. For the poor, they were mainly of shell or terra-cotta. Many examples of both kinds have been recovered. Especially striking are the girdles of carnelian and gilded copper, and some of the small objects, e.g., earrings and "netting" needles of pure gold, the surface of which is polished to a degree that would do credit to a present day jeweller.

Besides gold and silver, the Indus people were familiar with copper, tin and lead. Copper they used freely for weapons, implements and domestic utensils; daggers, knives, hatches, sickles, celts, and chisels, vessels, figurines and personal ornaments, amulets, wire, etc. Most of these objects were wrought by hammering, but examples of cast copper are not unknown. The number of bronze objects is comparatively small, doubtless owing to the difficulty and cost of procuring tin. The paucity of weapons at both Harappa and Mohenjo-daro is surprising, the only ones yet found being a few mace-heads, axes, daggers, arrow-heads, and possibly spear-heads. It looks as if these cities were but little acquainted with warfare. While copper was used, and used freely, for all sorts of utensils, knives made from flakes of chert were also common and show, like the stone maces and celts, that the influence of the neolithic age had not entirely passed away.

Common domestic vessels were of earthenware. Their great variety of shapes, each evolved for some particular purpose—evidence a long period of antecedent development, though it is curious how few of the vases are provided with handles. Most of the pottery is plain undecorated red ware, but painted ware is by no means uncommon (see An. Bibl. for 1926, plate IIIc.). As a rule the designs are painted, in black on a darkish red slip and consist of geometric and foliate devices with occasional figures of animals.

The seals (ibidem, plates IV and V) of which nearly a thousand have been recovered, were worn by a cord round the neck or wrist, and were used probably for sealing parcels, merchandise, etc., just as they were used in historical times in India. It is not improbable also that they may have served as amulets, and that the animals engraved on them may have had some religious significance.

The art of the Indus is distinct from that of any neighbouring country, notwithstanding the elements in common between them. The best of the figures on the engraved seals—notably the humped. Indian bulls and short-horn cattle—are distinguished by a breadth of treatment and feeling for line and form unequalled in the contemporary glyptic art of Elam or Mesopotamia or Egypt. The modelling, too, in faience of miniature rams, monkeys, dogs and squirrels is of a very high order—far in advance of what we should expect in the 4th and 3rd milleniums B.C.

That there were some features in common between the religious cults of the Indus and Mesopotamian peoples may be inferred from several figures closely resembling the Babylonian Enkidu (fig. 4) which are engraved on seals and copper pieces. The numerous terra-cotta figurines, moreover, which portray a nude female (fig. 2) crowned with elaborate head-dress and bedecked with ornaments, can hardly fail to be identified with the figures of the mother goddess familiar in Mesopotamia and countries further to the west,

That totems played an importart part in the religion of the 'Indus' people seems evident from the statues and other representations of a strange composite animal, partly ram, partly bull and partly elephant (fig. 3) as well as from a multitude of other animals—real or fabulous—engraved on the seals, among which attention may be drawn especially to a pair of ass-headed creatures singularly like those depicted on a well-known Mycenaean gem from Vaphio in Greece.

There are other elements which are characteristically and exclusively Indian. Thus, one of the scalings depicts a figure seated cross-legged with snake-hooded Nagas worshipping on either side, just as they were portrayed worshipping the Buddha in sculptures three thousand years later. Then there are certain curious rings and phallus-like objects—the latter somewhat resembling in form the so-called chess-men pillars of Assam, the religious character of which can hardly be doubted, though their symbolic meaning, has not yet been established. A great variety of both classes of objects has been found at Harappa and Mohenjo-daro. The majority are of stone; but some of the smaller ones are of terra-cotta ; others of bone or shell or faience. Some of the rings are no more than an inch in diameter; others again are so large that two men can scarcely lift them (plat Ia). A group of these stone rings of different sizes are found in a single room of a building at Mohenjo-daro, and another similar group was found at Harappa.

Whatever the extent of the Indus civilisation within India itself, there is no question that it formed part and parcel of the wide flung chalcolithic culture of Asia and Europe, which extended from the Adriatic to Japan but was focussed primarily in the great river valleys of the south of the Nile, the Euphrates, the Tigris, the Karun, the Helmund, and the Indus. This is an important point to have established; for it means that India came within the same circle of culture as the rest of Asia; that she passed step by step through the same phases of development as her neighbours on the West; and that, so far as the latter phases are concerned, she passed through them at approximately the same time, though whether at an earlier epoch she took the lead of her neighbours, is still a debatable point.

15 Rupam. An illustrated Quarterly Journal of Oriental Art; chiefly Indian. Edited by O. C. Gangoly, Nos. 29 to 32, January to December, 1927.
Contents. The story of Sashi and Punnu by R. K. pp. 70f.

30 H. Frankford. Studies in Early Pottery of the Near East II. Asia, Europe and the Aegean, and their Earliest Inter-relations. (Royal Anthropological Institute, Occasional Papers No. 8 ) London; pub. by the Institute's Agent, Francis Edwards, London, W. 1 ; 1927. price 12s. 6d.

These studies embrace problems of the potter's art not only in ancient Egypt and Greece, but also its relations with Central European pottery, ceramics of Asia Minor (Syria, Hittites, Hyksos) and even wares of the "Sind" culture lately excavated on the sides of Mohenjo-daro and Harappa (pp. 187 sqq.) A full bibliography includes the work.

The 1st part appeared in 1924, under the sub-title; Mesopotamia, Syria and Egypt and their Earliest Inter-relations (Royal Anthropological Institute, Occasional Papers, No. 6).

Rewied. . Revue Archaeolologique 1927, II, Vol. XXVI, p. 303 by S(alomon) R(einach) "etudes originales et suggestives."

47 Annual Report of the Archaeological Survey of India. 1924-25. Edited by J. F. Blakiston. Calcutta. Government of India Central Publication Branch. 1927. Royal 4to. xiv, and 270 pages; xiiii plates. Price Rs. 26-12 or 41s. 6d.

Contents: Section I, Conservation, pp. 1-26.

II. Exploration and research (taxila); Baluchistan explorations of H. Hargreaves; Indus Valley excavations of Sir John Marshall, K. N. Dikshit, and R. B. Daya Ram Sahni.

72 Ancient Sind Cultivation. "Times of India" 12th September, 1927.

93 Prof. M. M. Gidwani, M.A. A story of Ancient Sind, The Mausoleum at Hala. "Daily Mail" Bombay 17th May 1927.

105. Sir John Marshall. Exhibition of Antiquities discovered by the Archaeological Department during the year 1926-27. "The small Exhibition of antiquities which is now on view at 'Dalziel,' consists mainly of small, portable objects recovered by the Archaeological Department during their excavations of the year 1926-27." Mohenjo-daro p.1 Harappa, p. 3; chronology p. 4; culture, agriculture, p. 5.; Food, Animals, p. 6; Weaving and dress, Personal ornaments, Metals p. 7; Weapons, knives, etc. p. 8; Pottery, writing, inscribed seals p. 9 ; Art, disposal of dead, p. 10 Races, religion, p. 11; Extent of culture, p. 13.

108 Colonel Aubrey O'Brien. Old Ruins by the Indus.

The Times of India Illustrated Weekly, 4th September, 1927, p. 29, with 3 illustrations

A visit to the old fortress "reputed to belong to Rajah Bil and Rajah Til some 25 miles apart" from the Frontier hills near the Indus

14 Fr. W. Freiherr von Bissing. Ein vor etwa 15 jahren "Harappa Siegel." (A Harappa seal acquired about 15 years ago).

Archib fur Orientforschung, Internationale Zeitschrift fur die Wissenschaft Vom Vorderen Orient. Herausgegeben von Ernst F. Weidner, Vol. IV, No. 1, January-February, 1927, pp. 21f. with text illustrations.

Note on a seal of brownish yellow steatite which the author acquired at Cairo about 1912, and which was alleged to have come from Damascus. The object in question exibits exactly the same type as the sealings found at Harappa and Mohenjo-daro. The author ascribes seals of this kind to a Proto-Elamite. Civilisation which flourished in the country of the Indus. "The site of Harappa and Mohenjo-daro seem to have been advanced posts of a culture which is akin to the Susian-Elamite culture, but which is not homogeneous with it." "The unfortunate expression 'Indo-Sumerian' should be discarded; these seals have no affinity either with Sumerian or with Indian culture; they are merely found in a frontier district of modern India."

(Note:—Prof. A. H. Sayce wrote in September 1924; "The inscribed seals or plaques found at Harappa and Mohenjo-daro are practically identical with the Proto-Elamite" tablettes do comptabilite" discovered by DeMorgan

Susa. The form and size of the plaques are the same, the 'unicorns' are the same, and the pictographs are the same. The identity is such that the seals and tablets might have come from the same hand.")

34 Annual Report of the Archaeological Survey of India, 1922-23. Edited by D. Brainerd Spooner, Calcutta, Government of India Central Publication Branch, 1924, Roy 4to. XVIII, 281pp. 42 plates.

Reviewed: J. R. A. S. 1926, p. 764, by L. D. Barnett.

".....Specially noteworthy in recording the initial excavations at Mohenjo-daro, which together with those of Harappa have subsequently revealed such amazing vistas of prehistory, in addition to satisfactory work on the sites of Kuruksetra, Nalanda, Khiching in Mayurbhanj.....and other spots, while in its epigraphic section we may particularly note some corrections to Mr. Jayaswal's reading of the Kharavela inscription."

35 Annual Report of the Archaeological Survey of India, 1923-1924. Edited by Sir John Marshall. Calcutta, Government General Publication Branch, 1926, Royal 4to, X, 238, pp. 43 plates.

Contents: II, Exploration and research (incl. Harappa and Mohenjo-daro) pp. 47-87.

Reviewed: J. R. A. S. 1926, p. 764, by L. D. Barnett.

"the most fascinating paragraphs are those which tell of the now famous discoveries at Mohenjo-daro and Harappa the significance of which is here summarily indicated and of the progress of work on the sites of Taxila, Nalanda, and Khiching."

Journal of Indian History, V. pp. 135-141 by C. S. Srinivasachari; I Sir John Marshall on the excavations in Harappa and Mohenjo-daro.

Quarterly Journal of the Mythic So. (Bangalore), XVII, p. 72 by C.B.

80 Sir John Marshall..Prehistoric India, Sind and Punjab discoveries. A limitless field.

"The Times," London, February 26th, 1926. pp. 15-16 with 8 illustrations on page 18.

Sir John Marshall gives here a short communication on the recent progress of exploration at Harappa and Mohenjo-daro. He points out the great importance of these excavations, and remarks that "it may be imagined how almost limitless is the field awaiting the excavator." The activities of Mr. Sahni, Mr. Dikshit and Mr. H. Hargreaves (the latter in Baluchistan) are also referred to.

221 L. A. Waddell. Indo-Sumerian Seals.

Journal Royal Asiatic So. 1926, pp. 115f.

The author announces a Sumer-Aryan Comparative Lexicon for himself.

222 L. A. Waddell. Indo-Sumerian Seals Deciphered, London, Luzac & Co., 1925; XIX & 146 pages.

Reviewed: Bulletin of the School of Oriental Studies, London. 1926, by R. L. Turner; "We are hurt that in this volume the author has made no acknowledgment of our valuable suggestion, contained in a review of one of his previous fantasies of the intimate connexion between Tibet and top-hats. We shall therefore pass over in silence the no less marvellous discoveries of this volume.

265 Sir John Marshall. On a great civilisation in pre-historic times. By the Editor

Journal of Indian History. V. 1926. pp. 101-106.

The Editor deplores the refusal by the Legislative Assembly of a proposal that an archaeological fund be created by the Government of India setting apart fifty lakhs of rupees as a nucleus for that fund. Extracts from 'The Times' of February 1926, regarding excavations at Harappa and Mohenjo-daro.

274 J. Przyluski. Un ancient people du Penjab; les Udumbara; (an ancient people of the Panjab; the Udambara).

Journal Asiatique, Vol. CCVII, pp. 1-59.

Contents: I La route du Gange au Cachemire. p. 3-21.

II. Les etoffes de Kodumbara, pp. 21-25.

III. Kodumbara, Odumbara, pp. 25-36.

IV. Le Monde austroasiatique et la Grece, pp. 36-48.

V. Conclusion. pp. 48-55; liste des mots indo-aryens d'origine anaryenne. Index des noms propres. pp. 56-59.

The Author's conclusions, p. 54-55. "In anticipation of new documents which prehistoric archaeology will certainly yield us, we may previously represent us the events in the following way. The distribution of the Indian peoples before Alexander must have been the result of three successive invasions. First, the Austroasiatics flooded partially the Dravidian element, so that only the isle of the Brahui emerged in the north and the masses of the Dekhan in the South. Then, the Aryans, descended in India from the North West, occupies successively the middle valleys of the Indus, of the Yamuna, and of the Ganges, and spread from the focuses of Brahmanical culture; Lastly, the Bahlikas, coming from the East Iran, mixed with the Austroasiatic tribes which had been left aside by the Brahmans. These merchants and adventurers organised the great confederations like that of the Salvas and, while their caravans travelled from East to West, they prepared the formation of future empires, and assured the contact between India and the West." These conclusions are supported by numerous philological arguments.

295 Ramprasad Chandra. The Indus Valley in the Vedic Period. Memoirs of the Archaeological Survey of India No. 31 Calcutta. Government of India Central Publication Branch. 1926. Price Annas 8; or 10d.

188 R. K. The story of Sashi and Punnu.
Rupam, No. 30. April 1927, pp. 70ff, with 2 illustrations and 1 plate.

The author identifies two miniatures, one in the collection of Professor W. Rothenstein, and the other of Mr. Samarendra Nath Gupta, as representations of the popular love story of Sashi and Punnu. It is most interesting to have the same subject in the representation of two schools, *viz.*, that of Kangra and that of Moghul Court art.

228 L. A. Waddell...The Aryan origin of the Alphabet; Disclosing the Sumero-Phoenician parentage of our letters ancient and modern. London Luzac & Co. 1927. 8vo. VIII, 80 pages, with 4 illustrations.

The author who in a former book already tried to prove that the "Aryan-Phoenician" language is identical with an "early Briton" idiom, now "proves", using a similar method, that the letters of all the alphabets should be derived from the Sumerian pictograms.

Cp. An. Bibl. I. A. 1926. No. 222 and Introduction p. 4.

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## 1928.

19 Daji N. Apte. Hindi-Sumaeri-Samskriti. (In Marathi) Poona. The Chitra Shala Press, 1928. Price Re. 1.

Reviewed: The Modern Review, 1928, p. 655, by V. G. Apte.

"The excavations made at Harappa and Mohenjo-daro in Sind....go to establish closest resemblance between the Sumerian and the ancient Indian civilisation, both having a common stock of inheritance in the Vedas. Mr. Apte taking a cue from these discoveries has pursued his study of the Sumerian civilisation and as its result has produced this book which is brimful of interesting information."

55 Annual Report of the Archaeological Survey of India, 1925-26. Edited by J. F. Blakiston, Off. Director General of Archaeology in India.

Contents: Section I, Conservation, pp. 2-55. II. Exploration and Research pp. 55-130. (Excavations at Ahar, Bulandshahr by Madho Sarup Vats; A Buddhist Stupa exposed by erosions of the River Indus, Rokhari, Mianwali District by the Same; exploration in Baluchistan, especially at Nal, in Jhalawan, by H. Hargreaves; Mohenjo-daro by Sir John Marshall, Ernest Mackay, R. B. Daya Ram Sahni, K. N. Dikshit's research for further prehistoric mounds in neighbourhood of Mohenjo-daro.

87 R. D. Banerji, M.A. India in the copper age (in Bengali).

Visal-Bharat, Vol. I, Part I, No. 1, January 1928—Magh 1984) pp. 33-40, with 7 text illustrations.

Note on the chalcolithic civilisation of the Indus Valley and the excavations of Mohenjo-daro.

95 R. B. Ramprasad Chanda. The Indus Valley in the Vedic Period. (Calcutta, 1926).

Reviewed: Indian Antiquity, Vol. LVII (1928), p. 35. By C. Oldham:

"The author of this memoir discusses, not inopportunely, certain words and passages occurring in the Vedic literature with reference to recent discoveries in the Indus Valley with the object of facilitating the co-ordinations of archaeological data with ancient literary evidence."

119 Importance of finds at Mohenjo-daro.

The Modern Review, 1928, pp. 597f.

Quotes a paper published by Sir Arthur Keith in the *Referee* adding some observations.

123 Sir John Marshall. A new chapter in Archaeology ; The Pre-historic civilisation on the Indus.

The Illustrated London News, January 7th, 1928. pp. 12-15, and 32 with 18 illustrations; the same, January 14th, 1928, pp. 42-45 and 78, 80, with 17 illustrations.

126 Sir John Marshall. India 5,000 years ago, Mohenjo-daro. The Excavated cities. Art and culture on the Indus.

The Times, London. January 4th, 1928, p. 13; and January 5th, 1928. 2 illustrations, on p. 16.

For similar articles, cp. also.

Madras Mail, 16th January, 1928; Times of India, Bombay, 4th January, 1928, Bombay Daily Mail, 4th January, 1928.

129a Sir John Marshall, Ernest Mackay and R. B. Daya Ram Sahni, Mohenjo-daro. An. Report Arch. Survey, 1925-26, pp. 72-98 plates, XVI-XLVI.

Cf. An. Bib. I. A. 1926, pp. 1-5, plates I-V, and 1927, pp. 1-6, fig. 1-4 and plates I-II, where an account is given of the chief results of these excavations.

141 Sir Aurel Stein. An Archaeological Tour along the Waziristan Border. The Geographical Journal, London, April 1928, pp. 378-80.

" My object was a systematic survey" writes Sir Aurel Stein "accompanied where advisable by trial excavations of such ancient sites in the border regions between India and Iran as are likely to throw light on the connection of the prehistoric civilisation which the excavations at Mohenjo-daro and elsewhere in the lower Indus valley have revealed with corresponding cultures traced westwards in Persia and Mesopotamia." Between Draband and Tank the mounds seem to bury remains of early historical times separating the Indo-Scythian period from the chalcolithic culture. To the same period may be assigned the mounds near Spinwam and near Shahidan. To the chalcolithic period belong the sites in the vicinity of Fort Sandeman (Zhob Agency): at Rana. ghundi (Bori Tahsil, Loralai Agency); the great mound near Dabarkot and at Sur-jangal. A Kushan Buddhist stupa has been cleared completely at the entrance of the Thal plain. Some ruined mounds in the Pishin basin supplied finds of different periods, including ceramic wares of the Sassanian period.

## 1929.

18 Prof. V. Gordon Childe. The most ancient East; the Oriental Prelude to European Prehistory, London, Kegan Paul 1928; IV and 258 pages, 24 plates, one map and 86 text illustrations, price 15s.

Reviewed: The Asiatic Review, 1929, pp. 350 f. Burlington Magazine, 1929, I. p. 280 by E. B. "deals with the prehistory of Egypt, Sumer and Indus valley...." Asiatica. II. pp. 3f. "the illustrations are excellent." Man,

1929, pp. 91f. by a Murray: "it is given to few men to seize the essentials in so complicated and involved a subject and place them plainly before a reader in the way that Prof. Childe has done so brilliantly. The chief fault of the book is the want of adequate maps."

83 R. S. Vaidyanatha Ayyar, B. A. The Sumero-Dravidian and the Hittite-Aryan Origins.

Quarterly Journal of the Mythic So. Bangalore Vol. XIX, pp. 294-313 with 2 sketch maps and 6 illustrations.

After having compared the Sumerian civilization of Babylonia and that of the Indus valley recently discovered, the author tries to collect evidence in support of Prof. Hall's hypothesis that the Sumerians were of Indian origin. Secondly he attempts to show at the hand of mythological, philological and ethnographical evidence that there was a close family connection between the Hittite and the Aryan culture.

94 Prof. Barton. The so-called Indo-Sumerian Seals.

In Annual of the American Schools of Oriental Research, Vol. VIII for 1926-27 New Haven; Yale University Press;

Reviewed: Journal Royal Asiatic So. 1929, pp. 881f. by C. G. (add).... "he presents nearly all that was known at the time of writing, though he is not, of course, in a position to add anything much towards their actual decipherment.

104 A Coomaraswamy. A very ancient Indian Seal.

Boston Btin. XXVII, pp. 28-29, with 2 figures.

An Indus valley seal of Mohenjo-daro type, obtained in India in 1910 or 1912 by a coin dealer, now preserved in the Boston Museum.

108 Henry Cousens. The Antiquities of Sind with historical outline. (Arch. Survey of India Vol. XLVI, Imperial Series) Calcutta. Price Rs. 44-14).

From the preface "The explorations described in the following pages were made some years ago when funds for exacavation purposes were very limited; and their publication was postponed during the war"....

Contents: Sind, its rivers and antiquities. Outline of the history of Sind. Prehistoric remains and rude stone monuments. Remains in geographical orders. Miscellaneous remains. Ancient coinage of Sind (no index), plates.

144 Sir Aurel Stein. On Alexander's Track to the Indus.

Personal narrative of explorations on the north-west frontier of India, carried out under the orders of H. M. Indian Government, London; MacMillan & Co. 1929, Medium 8vo. XVI and 182 pages with 98 illustrations and two folding maps. Price 21s.

This is a personal narrative of Sir Aurel Stein's tour in 1925, an account of which was published in our An. Bibl. I.A. 1926, pp. 6-10 and pl. VI. The official memoir on the same tour will be published in 1930. Brief scholarly accounts were published in the Geographical Journal, 1927, pp. 417-440 and 515-540.

Reviewed: Indian Antiquity, LVIII, pp. 219f. by C. E. A. Oldham;...." a fascinating account of this tour of exploration as a whole, a tour that will rank as one of the most prolific in results of value to scholars ever accomplished in so short a time."

Asiatica, Vol. II, pp. 134f.

Luzac's Vol. XL, p. 183"....The book, it may be added, is illustrated by numerous photographic plates, most of which are exceptionally fine."

Journal Royal Asiatic So. 1929, pp. 926f. by G. L. M. Clauson. "it would be difficult to make out a more complete case and the identifications carry complete conviction."

Journal des Savants: 1929, pp. 69-73, by Georges Radet; "En somme, de toutes les hypotheses emises ay sujet d'Aornos l'assimilation avec Pir-Sar est celle qui reunit les plus de garanties."

Journal Central Asian So. Vol. XVI, pp. 405f. by P. M. Sykes; "None of Sir Aurel's works are written in so happy a vein."

The Northern Whig and Belfast Post, June 15, 1929.

144a Sir Aurel Stein. Alexander's Campaign on the Indian North-West Frontier. Notes from explorations between Upper Swa and the Indus.

Indian Antiquity, Vol. LVIII, Supplement, pp. 1-32, with 7 plates.

329 Ramaprasad Chanda, R. B.... Survival of the Prehistoric Civilisation of the Indus Valley. (Memoirs of the Arch. Survey of India, No. 41), Price Re. 1-2.

The author examines the Rugveda and compares it with what is known of the 'Indus' civilisation. His chapters are inscribed: Arya and Dasa; Priest and King; Human sacrifice Anumarana (following the husband to death in symbolic fashion); the Vratya and Yati (non-Brahmin magician priests) the Tree and the Animal Standard—Two of the Rai Bahadur's conclusions are: "(1) The religion of the Rishis was quite different from the original religion of the kings and chiefs of the Indus valley....(2) When the Kings of the Indus valley first came in contact with Rishis, the indigenous civilisation of the land was evidently in a state of decline and the kings and the peoples were losing their old faith in their own gods and their own rites."

There was a fundamental difference of opinions between Brahmans and Ksatriyas, e.g. in the matters of human sacrifice of anumarana, etc.

Reviewed: The Englishman, Calcutta, October 11th, 1929. Civil & Military Gazette, Lahore, November, 11, 1929. The Pioneer, Allahabad, November 10th, 1929. (see No. 346 of 1930).

419 (Arrianus). Flavii Arriani quae exstant omnia, edited A. G. Roos. Vol. II; scriptia minora et fragmenta; Lipsiae; Teubner, 1928. Price Mark 12.

Reviewed: Museum, Vol. 36. columns 202-204 by Dr. U. Ph. Boissevain. (in Dutch);

".....prolegomena on the subsidia critica are given before the text. An index autorum and a brief index nominorum et rerum, then a conspectus fragmentorum besides three maps (two of the journey of Nearchus in the Indian Ocean and in the Persian Gulf; one of the Periplus), complete this excellent edition."

581 George A. Barton. Whence came the Sumerians?

Joutnal of the American Oriental Society, Vol. 49, 1929, pages 263-268.

The most probable theory in the Author's view is that "the Sumerians were themselves descended from the dolicho-cephalic men of palaeolithic time, who had survived in some mountain fastness far from the Hamitic-Semitic centre, and had developed an entirely different language.

40 Annual Report of the Archaeological Survey of India, 1926-27.

Contents: 1. Conservation, pp 1-50; II. Exploration and research, pp. 51-183 (The Indus culture by Sir John Marshall; Mohenjo-daro by Daya Ram Sahni; Mohenjo-daro "L" area by Ernest Mackay.

99 Hargreaves, H. Prehistoric sites; archaeological survey excavating buried cities.

The Times, February 18, 1830.

On the excavations at Mohenjo-daro and Harappa, and other works of the Archaeological Survey of India.

109 Mackay Dorothy. The Indus Valley Excavations.

The Statesman, Calcutta, January 12, 1930, with three illustrations.

On the work done at Mohenjo-Daro.

110 Mackay Ernest. Mohenjo-Daro "L" Area.

Archaeological Report Archaeological Survey of India, 1926-27; pp. 89-97, plates XV-XIX. See No. 127 below.

112 Marshall, Sir John. Prehistoric man; crafts of the Ancient East—An "imported" head?

The Daily Telegraph, February 24, 1930.

Resemblance between the Indus sculptures and a head found by Professor Langdon at Kish.

113 Marshall, Sir John. The Indus Culture.

Archaeological Survey, Annual Report, 1926-27. pp. 51-60.

Account of the early chalcolithic civilisation revealed by the excavations at Mohenjo-daro and Harappa.

127 Sahni, Rai Bahadur Dayaram. Mohenjo-daro.

Annual Report, Archaeological Survey of India, 1926-27, pp. 60-68, plates X-XIV.

Account of the excavations conducted at Mohenjo-daro during the cold season of 1926-27. (see. No. 110 above).

139 Venkateswara, S. V. The antiquities of Harappa and Mohenjo-Daro.

The Aryan Path, Vol. I, No. 1, January 1930. p. 11-15.

"If the culture of the finds has to be carried back to the fifth millenium B.C. it is interesting that already in that age we seem to have evidence of a blend of Aryan and non-Aryan cultures."

346 Chanda, Ramprasad, R. B., B.A. Survival of the Prehistoric Civilisation of the Indus Valley.

(Memoirs of the Arch. Survey of India, No. 41, Price Re. 1-2-0). See No. 329 above of 1929.

Reviewed: Indian Antiquity. Vol. LIX, by C. Oldham.

"We feel that the author attempts in this short "Memoir" to solve too many difficult problems, though his views, if not convincing, are in many respects suggestive."

Journal Royal Asiatic Society 1930. pages 398f. by L. D. Barnett;

"This is an able and arresting monograph, although it does not carry conviction on all points."

349 Chaudhuri, H. C. Ray. A note on the chronological relation of Kaniska and Rudradaman I.

Indian Historical Quarterly Vol. II. No. 1, pp. 149-152.

"The facts noted above indicate that the Saka sect to which Castana and Rudradaman belonged came from Sakasthana in Iran through the Lower Indus Valley to Cutch and other places in Western India..As the great Satrap retained his hold on (Sindhu and Sauvira) till 150 A.C., it stands to reason that he was their ruler from Ac. 136A. C."

479 Stein, Sir Aurel. Alexander's campaign on the Indian north-west frontier. Journal Central Asian Society Vol. XVII, pl. 147-170.

A lecture recording a travel in research of the routes and places of Alexander's campaign in the valleys north of the Kabul River.

763a Stein Sir Aurel. An Archaeological tour in Waziristan and Northern Baluchistan. With an appendix by Professor Stein Konow. (Memoirs of the Archaeological Survey of India, No. 37). Price Rs. 13-14-0.

From the introduction: "The interests of history, georgraphy, archaeology combined have drawn me for many years past towards those border regions which since recent times have witnessed the interchange of the civilisations and ethnic elements of India and Iran. The excavations carried out under Sir John Marshall's direction at the prehistoric sites of Mohenjo-daro and Harappa....and those subsequently undertaken by Mr. Hargreaves in Kalat territory....had brought to light remains of a prehistoric civilization unmistakably pointing to links with that of a very early period traced in Mesopotamia and at sites of, or near, Iran such as Susa, Anau, and Sistan. It scarcely appears to have been adequately realized that the mention....of the Krumu and Gomati of the Rigveda(X. 75)....identical with the present Kurram and Gumal rivers, both comparatively small.... suggests such acquaintance with Waziristan as only prolonged occupation by Aryan tribes of the early Vedic period is likely to account for....The special attention thus drawn to the area separating the lower Indus from the head of the Persian Gulf, induced me (to undertake)....a general survey, determining the general character and the approximate epoch of each site examined. The (Sistan) remains of painted pottery dating from

chalcolithic times show indeed a very striking resemblance to our corresponding relics from early Baluchistan mounds."

Contents: I. Remains of the Waziristan Border. II. Prehistoric remains in Zhob. III. Ruined sites of Loralai District. IV. Old remains of Upper Zhob and Pishin. App. Note on Tor-Dherai Inscriptions. On several sites Buddhist remains of the Kushana period were found, especially at Tor-dherai.

## 1931.

6 Antiquity. A Quarterly Review of Archaeology, edited by O.G.S. Crawford, F.S.A. Vol. V. Gloucester; printed by John Bellows; 1931 Royal 8vo. and 540 pages, with numerous plates and text illustrations.

Contents: Excavations at Susa (Persia), 1930-31 by P. Mecquenem, pp. 330-343. Further links between Ancient Sind, Sumer, and elsewhere, by Ernest Mackay, pp. 459-473. Book reviews.

12 Journal of the Royal Asiatic Society of Great Britain and Ireland for 1931. Published by the Society, London, W. 1. 8vo. 1006 and XX pages, with 7 plates and 35 text-illustrations. Price 15s. each of the four parts or £2-8s. a year.

Contents: The script of the Indus Valley Seals by Pran Nath, pp. 671-674.

60 Annual Report of the Archaeological Survey of India, 1927-28. Edited by H. Hargreaves, Off. Director General of Archaeology in India. Calcutta. Government of India Central Publication Branch 1931. Royal 4to. XIII and 206 pages, with LVII plates. Price Rs. 16-8-0 or 26s. 6d.

Contents: I. Conservation pp. 1-53. II. Exploration and research pp. 54-135. (Excavations at Taxila, by John Marshall; at Mohenjo Daro by E. J. Mackay; at Jhukar by N. G. Majmudar; at Harappa by Madho Sarup Vats.

90 Brailsford, H. N. Buried Cities of the Indus.
Listener, London, July 8, 1931.
The Statesman, Calcutta, August 2, 1931.

91 Brailsford, H. N. Earliest India; the buried cities of the Indus.
Manchester Guardian, December 15 and 16, 1931.

I. Accepted views revolutionized. II. Art, Religion and Commerce. Views of Archaeologist "Heretics" justified.

97 Cousens, Henry. The antiquities of Sind, with Historical Outline. 1929.
See Annual Bibliography of Indian Archaeology, 1929. No. 108 and 1930, No. 85.

Reviewed: Journal Royal Asiatic Society. pp. 703-706 by C. E. A. W. (Oldham); "The author is to be congratulated on the excellence of the numerous drawings and of many of the photographs especially those in colour....."

Indian Antiquity, Vol. LX, pp. 18-20, by C. E. A. Oldham.

101 Duncan, Arthur. The Indus Civilisation; Mohenjo-daro and Harappa. India, October 1931. pp. 836ff. with 3 illustrations.

107 Gyani, R. A., M.A. Prince of Wales Museum of Western India; A guide to the Gallery of Miscellaneous Antiquities, Bombay. Government Central Press, 1931, 8vo. V and 14 pages, 15 plates.

"In asmuch as this Guide is meant for reference while going round the Gallery, it has of necessity to be in an abridged form. Scholars.....will, however, find reference which would help them in their further study and research."

Contents: (1) Pottery from the ruins of different Buddhistic Stupas in Sindh; (2) Carved bricks from the Stupas, excavated in Sindh. (3) Heads, images and other antiquities of the Pre-Islamic age, from South Arabia. (4) Arabic Medicinal Talismanic Cups. (5) Enamelled tiles from different Protected Monuments in Sindh. (6) Mr. G. E. L. Carter's collection of fragments of glazed pottery and porcelain models. (7) Miscellaneous exhibits.

114 Keith, Sir Arthur. When our civilisation began; an amazing find in India. On the finds of Mohenjo-daro.

118 Mackey, E. J. H. Excavations at Mohenjo-daro.

Annual Report Archaeological Survey. 1927-28, pp. 67-76 with five plates.

During 1927-28 excavations were carried out in two areas; (1) a large expanse of untouched ground lying between the stupa buildings and the Great Tank, including some Buddhist remains of the time of Vasudeva I, and an interesting bathing house probably used by priests for ablutions; (2) in the Dk. area, the excavations revealed what appears to be a potters' quarter, comprising numerous poorly built houses, four petty kilns, etc.

119 Mackay, Ernest. Further links between Ancient Sind, Sumer and elsewhere. Antiquity, Vol. V, pp. 459-473, with 10 figures.

Mr. Mackay gives here a large number of comparisons between objects of Mohenjo-daro and Western Asia, such as beads, svastika, motif, clay toys and figures, etc. He concludes with these words;

"These additional facts together wth the connexions already pointed out in the book (*i.e.*, Mohenjo-daro and the Indus Civilization) prove beyond question that the upper occupations at Mohenjo-daro are contemporary with the earlier ones of Ur and Kish. We have assigned the somewhat conservative date, 2750 B.C. to the upper levels of Mohenjo-daro, but we may have to increase it in view of the many connections between that place and the early period of Kish and Ur."

120 Majumdar, N. G. Excavations at Jhukar. Annual Report Archaeological Survey. 1927-28, pp. 76-83 with four plates.

The importance of these excavations, though they have been carried out only on modest scale, lies in the fact that the two mounds of Jhukar (Jhukar-jo-daro) are situated only 16 miles north of Mohenjo-daro, and that both contain antiquities of the same chalcolithic civilization as Mohenjo-daro

and Harappa. The trial trenches dug by Mr. Majumdar revealed three distinct strata the topmost layer yielding remains of the Gupta period (not earlier than the 5th century A.D.) while the third stratum contained prehistoric antiquities (copper and stone implements, pottery, pictographic seals, etc.) entirely identical in type wih those of the Indus valley civilisation.

120a Marshall, Sir John, C.I.E., Litt., D., Ph.D., F.S.A., etc.

Mohenjo-daro and the Indus Civilization. Being an official account of Archaeological Excavations at Mohenjo-daro carried out by the Government of India between the years 1922 and 1927. Edited by Sir John Marshall etc. 3 vols. London; Arthur Probsthain, 1931. Royal 4to. XXVII, XIII, and 716 pages, 164 plates, 2 golding maps in colours, 51 text-illustrations. Prices, £12-12-0 equal to $61 or Swiss Frs. 315.

Sir John Marshall contributes to these volumes the chapters on the country, climate, and rivers; the site and its excavation; the buildings; other antiquities and art; Religion ; Disposal of the dead; Extent of the Indus Civilization; the age and authors of the Indus Civilisation; the Stupa Area. Other contributions are:

Mr. Ernest Mackay, M.A., F.S.A., who writes on the S.D. area; and L. area, and D.K. area; Architecture and Masonry; Plain and Painted Pottery with Tabulation; Figurines and Model Animals; Statuary. Faience and Stone vessels; Seals, Seal Impressions; and copper Tablets with Tabulation; Household Objects; Tools and Implements; Technique and Descriptions of Metal Vessels, Tools, Implements, and other objects; Personal Ornaments; Games and Toys; Ivory, Shell, Faience, and other objects of technical interest.

Mr. H. Hargreaves contributes a chapter on the H.R. area; Rai Bahadur Daya Ram Sahni on the H.R. area, Section B, and on V.S. area. The Indus Script is dealt with by Mr. C. J. Gadd, M.A., F.S.A., Mr. Sidney Smith, M.A., F.S.A., and Professor S. Langdon, M.A., Ph.D., Mr. Muhammad Sana Ullah, M.A., B.SC., writes on sources and metallurgy of copper and its alloys. Colonel R. B. Seymour Sewell, M.A., SC.D., F.A.S.B., and Mr. B. S. Guha, A.M., Ph.D., on Human and Zoological Remains; Sir Edwin Pascoe, M.A., SC.D., F.G.S., F.A.S.B. on Minerals and Metals, and Mr. A. S. Hemmy, B.A., M.SC., on the system of Weights at Mohenjo-daro.

Cf. Annual Bibliography of Indian Archaeology, 1926, pp. 1-5, plates I-V and 1927 pp. 1-6 plates I-II where two brief accounts have already been given of the excavations then in course. The present monograph in 3 large volumes sums up in detailed accounts all the results of the investigations of the contributors. Every important object found is illustrated in the plates and discussed. All efforts to decipher the pictographic script of Mohenjo-daro have failed so far, but there is an exhaustive discussion and a full list of all inscriptions found, also a Sign List, containing all the signs occurring in the texts with full references. The date assigned to the site by Sir John Marshall is between 3250 B.C. and 2750 B.C. and he insists on the essential differences of this civilisation and that of the Vedic Aryans, who must have come to India in the latter half of the second mil-

lennium B.C. As to the race of the inhabitants of Mohenjo-daro, the author's concluding words are: "It would obviously be very rash in the present uncertain state of our knowledge to endeavour to identify as "Dravidian" either the skulls classed by Colonel Sewell as Proto-Australoid, or those classed as Mediterranean; rasher still to identify any of these skulls as "Sumerian." There are however many proofs of an intercourse between Mohenjo-daro and Elam and Sumer, which are summed up on pp. 103-105.

Reviewed: Journal of Indian History, (Madras) Vol. X, pp. 307-309, by C.S. Srinivasacharyar; "An epoch-making work....The long expected publication....on which Sir John Marshall, late Director General of Archaeology in India, was engaged for several years, has at last been brought out in three sumptuous and magnificently illustrated volumes....As Sir John points out, this book should, more than any other, serve to dispel the notion that the pre-Aryan peoples of India were altogether on a lower plane of civilization than their Aryan conquerors."

122 Metta, Vasudev, B. A long-forgotten civilization in India; Discoveries of Cities from five to six thousand years old. The World to-day, Vol. LVIII, No. 1, pp. 1-7, June 1931, with 5 illustrations.

On the excavations at Mohenjo-daro and Harappa, and Sir John Marshall's view regarding the Indus civilization.

137 Shanta Devi. Our Country 5,000 years ago. In Bengali Prabasi. Vol. XXXI, part 2, number 3, pp. 375-386, with ten illustrations.

A brief account of excavations at Mohenjo-daro.

142a Stein, Sir Aurel. An archaeological tour in Waziristan and Northern Baluchistan. Calcutta, 1929 (published 1930) See Annual Bibliography of Indian Archaeology, 1930, No. 763a, under Addenda, p. 138.

Reviewed: Journal Royal Asiatic Society 1931. p. 938f. by Jarl Charpentier; "Though the very limited time seems to have made it possible to Sir Aurel Stein to undertake systematic excavations only on a minor scale, there can be little doubt that among these finds there are several which seem apt to establish a link between the pre-historic civilization of the Indus valley and those of more Western countries."

Madras Mail, February 24, 1931.

Hindu, Madras, April 12, 1931, by K. A. Nilkantha Sastri.

144 Stein, Sir Aurel. On Alexander's track to the Indus.

London, 1929. See Annual Bibliography of Indian Archaeology, 1929. No. 144. Reviewed: Orientalistische Literarturzeitung, 1931, columns 571-572, by H. Beroe.

232 Nath, Dr. Pran, D.SC., PH.D. The Scripts on the Indus Valley Seals.

With an appendix (containing extracts from the Sumerian and Indian literature throwing light upon the words occurring in the inscriptions of the Indus Valley, Elam, and Crete). Indian Historical Quarterly Vol. VII, Supplement pp. 1-52.

From the Preface, "My researches have convinced me that what have been previously regarded as pictographs or idiographs are actually letters or monographs based on characters."

Contents:—The signs of the Indus seals and their classification on a syllabic base. Ancient Indian punch-marked coins. Decipherment of the linear inscriptions. A glance at the proto-Elamite and Minoan inscriptions. The Indus culture. Names of gods and goddesses occurring in the Indus inscriptions.

232a. Nath Pran. The Script of the Indus Valley Seals.

Journal Royal Asiatic Society, 1931, pp. 671-674, with two tables.

The author believes that the Indus Valley scripts consists of letters (*not* idiograms) closely connected with Brahmi.

379. Majumdar, R. C., M.A., Ph.D. The Arab Invasion of India.

Journal Indian Historical Society, Vol. X, Dacca University Supplement, pp. 1-60.

"In the following pages....an attampt is made....to reconstruct the history of....the Muhammadan conquest of India....(by) a critical study of the Muhammadan chronicles with the help of such Indian documents as are available to us."

Contents: (i) The western border-land of India on the eve of the Arab invasion. (ii) sources of information about the early Arab raids. (iii) raids against Kabul and Baluchistan. (iv) the Kingdom of Sind on the eve of the Muhammadan conquest. (v) Retrospect. Appendix.

398. Padmanabhayya, A. Ancient Bhrgus.

Journal of Oriental Research, Madras, Vol. V, pp. 55-67 and 80-100.

The author propounds the theory that the Brigus were Dravidian race, related with the ancient Elam and Mesopotamia "the connecting link between the Semitic and Aryan element."

423. Ray, H. C., M.A., Ph.D. The Dynastic History of Northern India (Early Mediaeval period). With a foreword by L. D. Barnett. Vol. I, Calcutta. University Press, 1931. Imperial 8vo. ix and 663 pages, with 10 maps in the text and a folding map.

From the Preface: "In the present work an attempt has been made to give an account of the dynasties that ruled in Northern India during the period of transition intervening between the decline of the Gurjara-Pratihara empire and the Muslim conquest, ca. 916-1196 A.D. The first two volumes ....contain the political history of the "Dynasties." The third volume which is in course of preparation will deal with the following topics; Administration; Economics; Social and Religious History, Literary History, etc."

Contents of the first volume: Sind; Sahis of Afghanistan and the Punjat. Kashmir, Nepal, Assam, Bengal and Behar. Orissa, Gahadavalas (Gahar-

wars) of Varanasi and Kanyakubja, Rastrakutas of Northern India. Later Gurjara-Pratiharas of Kanauj. Coins of the Arab Governors of Sind. Coins of the Sahis.

742. Langdon, Prof., S. A New Factor in the Problem of Sumerian Origins.

Journal Royal Asiatic Society, 1931, pp. 593-596, with two text illustrations.

Once more a seal of the early Indus Valley civilisation has been found in Mesopotamia, this time 9 metres below the surface, at Kish; it may be dated as contemporary with Sargon of Agade. "It is wholly impossible to explain the presence of this ancient Indian script on a press seal of 2800 B.C." says Professor Langdon, "unless it be admitted that the script was known in this period. In other words, native Indian seals.... occur in the age immediately before Sargon; the script was known in Sumer in the early period only, and remains absolutely unchanged. Now several hundred of these seals have been excavated at Mohenjo-daro and Harappa, in the Indus Valley, and they also show no evolution in epigraphy, although found at different levels."

"But all this raises the question as to whether the Sumerians are not really the Indus Valley people themselves." The writer however does not feel justified to give a definite answer: "Facts and facts only must be published until some reasonable and defensible history can be based upon them."

# ANNUAL BIBLIOGRAPHY OF INDIAN ARCHAEOLOGY

## 1932

## THE INDUS CIVILIZATION AND THE NEAR EAST.

The present essay deals with but one aspect of the astonishing discoveries made by Sir John Marshall and his collaborators in the Indus Valley.(1). It is the close affinity of the newly discovered civilization with those of the Ancient Near East which concerns us here. A connexion has been proved to exist. It is of importance to establish its nature since it may have a very direct bearing on the history of the West.

The Ancient Near East is a well-defined historical entity. There is the fourth millennium B.C. starts the continuous development of which our own civilization presents the most recent stage. The populations of the Nile Valley, Mesopotamia and the coastal regions of the Eastern Mediterranean broke away from the stagnation of the neolithic peasant culture which had prevailed for untold centuries from the coasts of the Atlantic to the Bering and China Seas. Shortly before 3000 B. C. we observe an accelerated development which left the periphral regions—Europe, Central Asia, Africa beyond Egypt—far behind. There can be no doubt, however, that the Indus Valley must henceforward be considered as part of the civilized world of the third millennium B.C.

In order to co-ordinate the new knowledge with the established history of the Ancient Near East, we have to fix with some precision the age of the Indus civilization, or rather of that stage of its development which the excavations have revealed. For the chronological problem is considerably simplified by the fact that the deposits contain throughout remains of a homogeneous civilization—in other words, only one stage of its development is known to us. Unfortunately imported objects from better known regions have not been found so far at Mohenjo-daro or Harappa; consequently the age of the remains was left uncertain.

Comparisons made between the painted pottery from India, and various fabrics from Persia and Mesopotamia were ill-founded from the first and have since been proved to be entirely misleading. Summarising the outcome of an argument which it would be tedious to repeat here (2), we may state that the painted pottery found in India is the product of an entirely local development, in which traditions of a more ancient ceramic art are incorporated. In the Iranian Highlands these traditions go back to the earliest periods known. In Western Persia and Mesopotamia we meet with numerous local varieties as well as with different stages in the development of this Highland pottery. The Indian wares have been proved to be contemporaneous with one of the late survivals of this Iranian Highland ware in the West. But the survivals in Persia and India of this ancient tradition show little or no resemblance, since they are separated from their common origin by many centuries of independent development.

Another intrinsic indication of the age of the Indus civilisation has been found in the total absence of iron. But we can hardly go further, on the strength of the evidence, than to say that, it flourished before the latter half of the second millenium B.C., especially as both copper and bronze were in use in Mohenjo-daro. The introduction of bronze to common use seem to vary in different regions. In Mesopotamia it has been proved to occur in the first centuries of the third millenium, namely

in the Royal Tombs at Ur where copper however remains more common for tools and weapons. Exactly the same situation was disclosed in our own work at Tell Asmar where it bears on Sargonid and Early Dynastic Times (3). The occasional use of bronze at Mohenjo-daro need not, therefore, be considered as proof of a late date. On the other hand, Sir John Marshall uses the term chalcolithic and thereby suggests too early a date for his discoveries. Unless the use of this term is confined to the transitional stage of civilization in which most implements were still made of stone, while copper was beginning to come into use, it loses all meaning and usefulness. The actual occurrence of stone implements in a layer does not however mark it as chalcolithic. The continued use of stone for ritual implements is well known. The present writer found in the Akkadian city at Tell Asmar (2500 B. C.) not only finely made flint arrow-heads in use alongside of an extensive series of copper tools and weapons, but also ordinary chert, flint and obsidian flake knives turned up in considerable quantities. Even in Tell el Amarna a city in Egypt which antedates by only two centuries the introduction of iron into common use, some flake knives were found at not infrequent intervals. However, the stone work at Mohenjo-daro does afford some evidence as to its age. The total absence of the so-called "sickle-teeth," flat saw-edged flints set in bitumen in wooden sickle handles, suggests that the chalcolithic age lies a considerable distance back in the past.

Summing up we may say that there is no intrinsic evidence by which the Indus civilization can be dated.

Soon after the first publication of the Indus discoveries, however, Mr. Mackay drew attention to the occurrence of imported Indian object in Mesopotamia (4). And since then some six or seven stamp-seals and some etched carnelian beads have been reported from that country (pp. 496, 423) while recently Mr. C. J. Gadd published no less than eighteen Indian seals found in the excavations at Ur alone (Proceedings of the British Academy, Vol. XVIII, London 1933). It so happens however that not one of these objects was properly dated by the circumstances in which it was found.

Unequivocal evidence, however, was obtained in January 1932 in the excavations which the present writer is directing for the Oriental Institute of the University of Chicago. The objects shown in Plate I (left side) were found in a well defined archaeological stratum at Tell Asmar, the site of ancient Eshnunna, fifty miles to the north-east of Baghdad, in what is now total desert. The objects depicted in the right half of the same plate are re-produced from the Mohenjo-daro volumes. The Indian origin of the Mesopotamian finds is evident, the more so as no parallels exist from other Mesopotamian sites. Since the matter is of paramount importance, the circumstances in which these objects were discovered are worth describing here (5).

The low ridges on the northern outskirts of Tell Asmar cover private houses dating from the time of the Dynasty of Akkad (about 2500 B.C.) This is proved by a wealth of evidence comprising not only cylinder seals and pots, but also tablets and seal-impressions, one of which actually mentions Shu-dur-ul, the last king of the dynasty. Now in these houses and among those objects, which are in no way exceptional, the objects shown in our plate I (left side) were discovered,

Most striking amongst these is the cylinder seal of which an impression is shown here. The subject establishes at once its non--Babylonian character, not only because it is without parallel among the thousands of known seal cylinders, but also because the animals foreign to Babylonians, were obviously cut by an artist to whom they were familiar. Moreover, no Babylonian seal of this quality shows so unbalanced a composition.

But we can go even further; certain peculiarities of style connect the seal as definitely with the Indus civilisation as if it had actually borne signs of the Indus script; the convention in which the feet and ears and folds in the Elephant's skin are represented, the peculiar rendering of the ears of the rhinoceros, are details which recur identically on seals from Mohenjo-daro. Moreover, a seal impression from that site shows a procession of animals in which the rhinoceros and elephant occur side by side, while a crocodile is figured above. (Plate I, fig. k.)

It is curious, and perhaps significant, that the back of that same Indian seal impression shows a double forequartered animal of a type which recurs in a special class of Mesopotamian seal cylinders found, so far, only at Tell Amar, Assur and Susa, or in other words, in the easternmost part of Mesopotamia, where it borders on the Persian mountains (6). Lastly it is worthy of note that the material of the cylinder from Tell Asmer is rare, if not unique, in Babylonia. Unfortunately expert opinion is not yet available, but to the writer it seems to be made of the glazed steatite used in India for the seals. It should be added that cylinder seals, though unusual, do occur occasionally in India. I am indebted to Mr. Ernest Mackay for this information.

There can be no doubt but that we have in our cylinder seal from Tell Asmar an importation from the Indus valley, which reached Eshnunna about 2500 B. C. nor does it remain isolated, as we have seen. For the more common Indian seal form, a square stamp seal with a pierced knob on the back, bearing a design of concentric squares, was also found in our excavations, and this does not seem to occur elsewhere in Mesopotamia, although known on similar seals at Mohenjodaro. Necklaces of ordinary Akkadian beads sometimes contain beads of etched carnelian which resemble, as Mr. Mackay was the first to point out, Indian specimens. Kidney-shaped inlays of bone, probably used for small statues, are identical in shape with some in shell from Mohenjo-daro and occur nowhere else. And indirect evidence of intercourse with India is provided by the fragment of a clay tablet depicted in Plate I, fig "g" upon which a draughtsman at Eshnunna has sketched the head, horns and hump, of an Indian zebu.

Somewhat uncertain is the evidence of the knobbed pottery. It occurs at Tell Asmar and at Mohenjo-daro, but not at other sites in Mesopotamia. The shapes of the complete vessels (Fig c & h) found during our last campaign of 1932-33 differ, it is true, from those found at Mohenjo-daro. But there is no need to expect identity instead of resemblance. Even our cylinder seal, whose Indian origin does not admit of doubt, has no exact counterpart in Mohenjo-daro or Harappa; there is also something peculiar about our alabaster stamp seal which shows a row of dots surrounding its concentric squares. The difference may have chronological or geographical reasons; in other words, our seals may belong to a slightly later or earlier stage of the Indus civilisation than that found at Mohenjo-daro; or they may have come from another site

within the same cultural province. For many reasons the last assumption seem likely to prove correct. In any case there can be no longer any doubt that the stage of the Indus civilization which the excavations have disclosed was reached about the middle of the third millennium B. C. ; at which time a lively intercourse with Mesopotamia was kept up, the traces of which we have found in the houses of the Akkadian merchants and craftsmen at Tell Asmar. It should therefore be remembered that the question of priority is entirely irrelevant so long as the Indus civilization is not known to us in earlier stages. For the phase represented at Mohenjodaro is contemporaneous as we have seen, with a period in Babylonia which is separated by three distinct stages of culture, each lasting many centuries, from the remote past revealed by the excavations at Ur and Warka, when man settled in the drying marshes of the Plain of the Two Rivers.

We may well ask, however, whether an analysis of the finds such as they are, cannot lead us to draw by inference conclusions as to the nature of the relationship between India and the West. Is there merely resemblance as a result of a common type of material surroundings, supplemented by such mutual influence as commercial intercourse is apt to bring about ? Or is there a deeper, less external similarity between the civilizations of those regions ?

As to the natural surroundings, we should remember that present day conditions in the Indus valley did not obtain in the third and fourth millenium B. C. For Sind shares with Baluchistan and Mesopotamia a climate which has changed much for the worse during the last four millennia. Sir John Marshall feels inclined to ascribe the increased aridity to a less abundant monsoon ; but whatever the cause of the change may have been its effects are inter alia demonstrated by the extensive remains of early settlements discovered by Sir Aurel Stein in Gedrosia where nowadays the population does not exceed two persons to the square mile (7). It is significant that the bulk of the objects brought back from Baluchistan belong exclusively to that very ancient Iranian Highland culture which antedates the Indus civilization, as it is known to us, by many centuries. And the incipient lack of water is manifest in the dams (gabr band) of which the remains abound. The Indus valley however was able to maintain a large urban population at any rate as late as the middle of the third millenium B. C.

An excellent basis for a comparison of the Indus civilization with the Near East is provided by the architectural remains, because they are numerous and extensive in both regions. It strikes us, first of all, that the buildings most conspicuous all through the Near East, the temples, are seemingly absent in the Indus valley. Unless the structure called a 'public bath' at Mohenjo-daro be of a sacred character, not a single sanctuary has been found. Domestic and civic architecture in general is, on the other hand, much more luxurious and highly developed than that of Babylonia or Egypt (8). Baked brick is not used in Egypt until Roman times, and in Babylonia it is used sparingly for bathrooms, doorsills, drains, lavatories, more rarely for a revetment of temple or palace walls. In Mohenjo-daro on the other hand, baked brick is used throughout and crude brick is confined to foundations or terrace fillings. Mud or bitumen serves as mortar in Babylon, whereas Mohenjo-daro uses mud mortar mixed with gypsum. The rubbish shoots in the private houses, the public dust-bins (p. 16, n8) street drains (p. 17) are so many refinements which Babylonia and Egypt lacked, not only in the third millenium but all through their history. It may be that the scarcity of wood from which Egypt and Mesopotamia suffered, held back the development of secular

architecture; it certainly seems to explain the sparse use of baked bricks in Mesopotamia. But whatever its cause, the superiority of domestic architecture at Mohenjo-daro is most striking.

There are certain architectural details which the Indus civilization and Mesopotamia have in common. The corbelled arch has been proved to exist in pre-Sargonid times at Tell Asmar and it occurs also at Mohenjo-daro. The same applies to circular wells built of segmental bricks, lattice screens for windows made of stone or baked clay horizontal drains built of baked bricks and vertical pottery drains, or drain pipes and ornamental recesses in the walls. But nothing could show better the complete independence of the excellent architecture of Mohenjo-daro than the difference in the application of the last named feature.

The use of vertical recessed niches is a logical consequence of the nature of brick architecture ; in Mesopotamia it is used to enliven the outside of temples or palaces by a rhythmic division of the wall surface, or to accentuate a particularly important part on the outside of the building, such as the towers flanking a temple entrance. At Mohenjo-daro, on the contrary, it is exclusively applied as inside ornamentation of rooms (Pl. VI, 76, 77).

Reviewing the material so far adduced, it would seem that the brick architecture of Mesopotamia and India, represents two independent developments ; but it is by no means unlikely that they are founded on a comomn basis. Building with bricks is in itself an invention which may well have spread from one centre ; in Mesopotamia we can follow its development from very early times, viz., from the Urak Period. In Egypt on the other hand, brick architecture first appears in a context and in a manner which makes its derivation from Asia very probable (9).

For the rest of the material equipment of the Indus civilization is distinctive in several ways. It shares with the Near East the knowledge of agriculture and of domestic animals. If the plough is not found, this does not mean that it was unknown. We should not suspect its presence in Egypt and Babylonia if it were not for the representations in tombs and on cylinder seals. The use of cotton, well testified at Mohenjo-daro is unknown in Mesopotamia and Egypt; Sennacherib of Assyria (about 700 B.C.) attempted to acclimatize Indian tree-cotton in the botanical gardens at Nineveh, as appears from a cylinder in the British Museum published by the late Professor E.W. King ; there Sennacherib says "the trees that bear fleeces they sheared and they shredded it for garments" (10) ; but cotton at no time played a part in the economics of the Ancient Near East.

Remarkable is the use of bronze, with 4½—13% of tin. Its appearance in the Near East is in any case difficult to date ; it is occasionally found at Tell Asmar and at Ur in pre-Sargonid (Early Dynastic) times, while most of the tools and weapons are still made of copper. And this is also the case in Mohenjo-daro. The highly developed metal industry which made use of the closed mould and which seems to have spread from the Caucasus region to Sumer on the one hand and to Central Europe on the other, affected neither India nor Egypt.

The widespread use of faience is, as Sir John Marshall rightly remarks, a curious feature of the early civilizations all through the Near East, since its production requires

a technique by no means simple, but first of all, a considerable amount of inventive capacity. Here again however we must take into account that we know the Indus civilization at a stage which is atleast 1,000 years younger than the time of the first appearance of faience in Egypt and Mesopotamia, so that we cannot decide as yet whence this knowledge spread.

Glass was not known in India and the present writer atleast is not prepared to admit that its existence in the chalcolithic deposits of Baluchistan is proven (p. 35). On the strength of a first impression one would ascribe the bangles of particoloured glass found by Sir Aurel Stein to medieval times ; and before admitting that they were manufactured by the makers of the chalcolithic pottery one would require much more definite stratigraphical evidence than the brilliant and extensive explorations of Sir Aurel Stein could, in nature of things, produce.

Another technique which is of an exceptional nature and is common both to the Indus civilization and Mesopotamia is, as we have seen already, the etching of carnelian beads, so that the design stands out in white. (11). We have seen that such beads were found at Tell Asmar in Akkadian times ; they occur at Ur and Kish in the preceding Early Dynastic Period. They are found at Harappa, and at Mohenjo-daro but are not so common as in later strata in India. At Tell Asmar we have some specimens of a later date as well (Larsa Period 2100 B. C.) one of which is etched with a spiral design. The land where this techinque originated cannot therefore be established at present.

If, instead of techniques or classes of objects, we consider isolated finds, there are several which remind us of Mesopotamian counterparts. Most striking is the "vanity case" found at Harappa (12); not only is the combination of piercer, ear-scoop and tweezers similar to those from Ur, Kish and Khafaje, but also the method of combining them into one object by fixing a ring through loops obtained by winding the curved ends of the three objects round the stem.

Other objects are enumerated by Sir John Marshall (pp. 104 f) and by Mr. Mackay in a recent article (13). We may add to these some types of beads, e.g., the gold foil disc bead with a tabular hole across to take the thread (Pl. CXLIX, 7) the counterpart of which we found in silver at Tell Asmar. Multiple necklaces (Pl. CXLIX, 3 and Pl. CLI, b, 10) resemble Egyptian ornaments in the use of thin spacers and semi-circular end pieces, while similar end pieces are not found in Babylonia. There, however, we find the spacers and also identical long biconical carnelian beads in Akkadian times, while the long carnelian beads of the Old Kingdom in Egypt are cylindrical, and not like the Indian and Mesopotamian beads, elongated biconical. These and similar points of resemblance between single finds from Mohejo-daro and the Near East are probably significant and not merely accidental. They can, however, be explained adequately as a result of commercial intercourse.

If we consider similarities in spiritual culture, we have first to consider the Indus script which was compared with linear (pre-cuniform) Sumerian writing by Mr. Sydney Smith and Mr. C. J. Gadd, as soon as Sir John Marshall's discoveries were made known. But Mr. Gadd admits (p. 411) "that further experience has not tended to confirm our faith in any direct connection between the writing of Sumer and of the Indus." In fact there are not many different ways in which objects such as, for instance, a fish can be simplified and engraved. Some few signs which are

more complicated resemble each other, but they form an insignificant fraction of the newly discovered script. On the other hand, the excavations carried on at Warka (Erech) by Dr. Julius Jordan in recent years (14) have revealed earlier stages of Babylonian writing so that its development from pure pictograms through a semi-pictographic stage, thence to a linear and finally to a cuneiform stage can be followed in some detail, and though the material of the earliest stage is still somewhat scanty, there seems no approximation to the Indian signs, which in any case are more than millenium later in date. We need earlier Indian material before we can say whether the two scripts spring from a common root.

In weights and measures there is divergence between the fully developed sexagesimal system of Babylon and that of Mohenjo-daro, which is binary and then decimal. But we know now that in the Jemdet Nasr Period a decimal system has been in use, and though it is patently impossible to enter there upon the intricacies of ancient metrology, again it seems likely that the Mesopotamia and Indus civilizations possess in the matter of weights, an element in common which may derive from a remote past.

In religious matters we can see a little more clearly. There, in any case, the Indus civilization has very pronounced and individual characteristics. In fact, Sir John Marshall writes that the religion of Mohenjo-daro is "hardly distinguishable from still living Hinduism or at least from that aspect of it which is bound up with animism and the cult of Siva and the Mother Goddess (p. vii) It is true that the evidence is purely archaeological; but it seems quite unequivocal. The interpretation of certain stones as linga and yoni symbols seems incontrovertible. There are not only statuettes of the Mother Goddess; but also a seal where a male god with three faces, accompanied by tigor, elephant, buffalo, and rhinoceros, and "seated in a typical attitude of yoga" (p. 52) suggests a protype of Siva. For all these representations and objects the Ancient Near East offers no parallel. It is different when we consider the cult of the Great Mother Goddess and Sir John Marshall in discussing this early form of Saktism, rightly draws attention to the Near Eastern cult of a Great Mother and a young subordinate god, her son and lover, which certainly forms one of the earliest religious strata in the Near East of which we have knowledge. If the religion of the Indus people has on the whole a peculiar and individual character, it is certainly possible to believe that part of it derives from a creed which has been common to India and the Near East in a remote period.

A similar kind of resemblance exists between certain composite animals appearing at Mohenjo-daro and those known from Sumer. The bulk of the animals on the Indian seals, natural as well as mythical are clearly of local stock. Their prototypes do not occur in the West; the style in which they are rendered are peculiar; and even the monstrosities, such as the bulls with elephants' trunks or with three heads (Pl. CXII) are products of a purely Indian imagination. There is therefore no need to adduce Sumerian seals (15) in order to explain designs in which animals are entwined so as to form a svastika or star (Pl. CXII, 283,286). But there are two kinds of monster, which closely resemble Mesopotamian types. The human-headed bearded bull of Sumer and Babylon only differs from the human-headed bearded ram of Mohenjo-daro (Pl. XII, 18,22) in the type of horn depicted. At Mohenjo-daro the strange quadruped has the long corkscrew horns, placed horizontally-of the earliest known breed of Egyptian and Sumerian sheep. Now sheep do not

occur on Indian seals, but this may be due to a religious reason; authorities like Adametz and Hilzheimer (16) state that the original homeland of this early breed is Afghanistan and India, and that it reached Africa with the Hamitic migrations. Its absence from the Mohenjo-daro seals does not, therefore, prove that the Indus people did not know it (17) and necessarily must have derived the picture of the human-headed ram from Sumer where sheep of this type are represented on the monuments. In any case human-headed rams do not occur in Sumer. It is thus impossible to decide whether the Indus people invented their human-headed rum as an approximate equivalent of the Mesopotamian human-headed bull; or whether it is an independent Indian invention. In fact, there is yet another explanation; the two monsters may be variations of an original belief in which a human-headed quadruped played a part, a belief which possibly was common to the ancestors of the Indus people and the Sumerians.

The case is different from other composite being. This is a male human figure with bulls' horns, ears, hooves and tail. It occurs on two seals (Pl. CXI, Nos. 356 and 357). In Mesopotamia it is not only common on seals, but amongst Mr. Woolley's finds at Ur a silver head of this type was found (Museum Journal, Philadelphia, 1929), and in our excavations at Khafaje, a pre-Sargonid site near Tell Asmar, stone pendants in the shape of this demon's head turned up on several occasions. These, though smaller in size, are otherwise almost identical with two clay masks of this personage found at Mohenjo-daro (Pl. XCV, 1,2)—a fact which is all the more striking as the terracotta figurines of the Mother Goddess are as different from the Babylonian type as two classes of such crude objects can be. In the present case it can hardly be doubted that some connexion must exist. But it is proved that the appearance of the monster in India is due to influence from Sumer; and the question arises whether the derivation could be explained as a result of the commercial intercourse which we know to have existed from the Indian importations in Mesopotamia. It is safest not to put a name to this creature; for it is not at all certain that it was called Eabani or Enkidu by the Ancients, as Sir John Marshall was led to believe.

It is in the field of religion, too, that the resemblance with Egypt obtrudes itself. On one seal impression (Pl. CXVI, Number 508) we see figures carrying effigies of animals (on a bull) on standards which exactly resemble the standards carried in front of Pharaoh in certain processions and which appear for the first time in Egypt with the kings of the First Dynasty, when eastern influence for a short period was strongly felt (18). Intercourse between Egypt and the East, which made such influence possible, will also have been responsible for the diffusion of the sacred standard, but in which direction it travelled we cannot tell.

Amongst the statutory of Mohenjo-daro we find another similarity with Egypt. It is the statue reproduced in Pl. C, 4-6, which represents a bearded man kneeling with his right foot and left knee on the ground, while one hand is placed on either knee. We lack the means of deciding whether this attitude is exceptional in the Indus civilization. There would have been no reason to single out this statue from its fellows (which are each unique in their way) were it not that exactly the same attitude is rendered in an Egyptian statue of the First Dynasty from Heirakonpolis; and in the case of this statue we do not know that the attitude is, indeed, exceptional (19). Yet there can be no absolute proof that a direct connexion exists because at this time the Egyptian sculptors were feverishly experimenting, and it is only

at the end of the Early Dynastic Period that a distinctive Egyptian style of sculpture emerges slowly from the chaos. Proof exists, however, that during this period influences from the East affected Egyptian art, and the similarity which we have pointed out may gain significance in the light of future discoveries. It is equally uncertain which country was the donor and which the recipient; the scarcity of stone in the Indus civilization makes it appear likely however that its sculpture was an imitation of work seen abroad; and its clumsiness is well in keeping with this view (19).

Another statuetto (Pl. XCVIII) wears a cloak ornamented with a trefoil pattern which appears, similarly incised, on certain Mesopotamian sculptures of the third millenium (p. 356, n. 2). Yet another feature of the statutes deserves to be mentioned here. It seems to me most significant that those from Mohenjo-daro show some of the same fashions in use in India as we meet with in Mesopotamia. It appears that the beard was worn while the upper lip was shaved (20) the hair was sometimes tied up in a chignon at the back of the head and kept in position by a fillet, as we see in the gold helmet of Meskalamdug from Ur, and on Eannatum's style of Victory. Now fashion in ancient or primitive civilizations is not to be taken lightly. It is recognised as venerable link with the past; it proclaims the ethnic or national affinity of the individual. Fashion does not spread, under such circumstances, as a mere result of commercial contact. Consequently the similarities in coiffure, beard and moustache between the statues from Mohenjo-daro and those from pre-Sargonid Mesopotamia betray some sort of intimate ethnic relationship between the leading classes in those two regions. The wide divergence in culture on the other hand, excludes a very close connexion, at the only time in which the Indus civilization is known to us. But in Mesopotamia we possess an unbroken series of monuments which enables us to trace the prevalence of this fashion back through a number of centuries, to the Uruk period at least.

The conclusion seems inevitable that an important element in the population of the two regions belonged originally to a common stock. We have noticed in discussing architecture and metrology, religious monuments and seal designs, that the suggestion of a common substratum of certain cultural traits in India and Mesopotamia, has, as it were, been forced upon us by the various similarities which could not adequately be explained as being due to commercial intercourse, or to other factors active in the one period in which we have only knowledge of the Indus civilization.

It is relevant to recall here that the earliest settlers in the plain of the Two Rivers seem to have descended from the Iranian Highlands, which had supported a homogenous culture, the remains of which have been traced by Sir Aurel Stein up to the eastern frontier of Baluchistan; and that the deserts interposed between India and Iraq at the present time were to a large extent inhabited at that early period, when the climate was less arid. If progressive desication of the marshes in Mesopotamia attracted settlers from the East, it may well be that simultaneous effects of the climatic changes in the Highlands compelled them to migrate. And then it would be more than likely that they descended not only to the river valleys in the West but also to the Indus plains in the East.

We move here, obviously, in the realms of sheer hypothesis. In Mesopotamia we have been able to show that a certain measure of continuity connects the civiliza-

tion of these earliest settlers with that of the Sumerians who were ultimately subjugated by Sargon of Akkad. The present writer is inclined to the belief that those earliest settlers were in fact, Sumerians. But though many of his colleagues agree, several do not accept his view; and in any case we have not a shred of evidence in India to connect the civilization of Mohenjo-daro with the chalcolithic culture of the Iranian Highlands.

We have here, however, explored the field of possibilities over the whole of its length and breadth in order to demonstrate the unique importance of the problems raised by the discoveries at Mohenjo-daro and Harappa. At present the magnificent achievement of Sir John Marshall and the scholars and assistants who rallied round him remains a torso. It is tragic misfortune that the Government of India has interrupted explorations at this point. Since it has been established beyond a possibility of doubt that India played a part in that early complex culture which shaped the civilized world before the advent of the Greeks, it should be considered a national duty of new India to continue the work which has been so brilliantly begun.

H. FRANKFORT.

11 Journal of the Royal Asiatic Society of Great Britain and Ireland, for 1932, London. Published by the Society, Price Rs. 15.

Contents: Another Indus Valley Seal, by S. Langdon, pp. 47ff.

29 Fabri, Dr. C. L. Note on the Importance of South Persia in Archaeological Research.

Indian Art and Letters. Vol. VI, pp. 120f. with a sketch map.

The connexion of prehistoric Indian and Mesopotamian civilizations becomes more and more evident. The areas lying between the two extremes have lately been explored by Prof. Herzfeld (Luristan) and Sir Aurel Stein (Baluchistan both Indian and Persian). The author who accompanied Sir Aurel Stein on his last tour alludes to the important discoveries made in Persia, Baluchistan and points out, that the coast of the Persian Gulf is a very promising and important archaeological field.

"We have ample evidence, historic and other, that navigation along the Persian coast from the West to India (and even to China) was known in antiquity. There exists the clearest possible evidence that, prior to the 'discovery' of the 'new route' to India by the Greek navigators, extensive commerce was carried on these seas, and merchandise reached Mesopotamia from the Indian side."

68 The Indian Antiquary. A journal of Oriental Research. Vol. LXI, (1932).

Contents: Old sites on the Lower Indus, by G. E. L. Carter, pp. 86-90. The river courses of the Punjab and Sind, by R. B. Whitehead, pp. 163-169.

69 The Indian Historical Quarterly. Vol. VIII, Edited by Narendra Nath Law. Calcutta. Oriental Press, 1932.

Contents: Mohenjo-daro and the Indus Valley Civilization, by Narendra Nath Law, pp. 121-164.

Supplements: The Scripts of the Indus Valley Seals, II, by Pran Nath pp. 1-32.

109 Chanda, Ram Prasad. Sind Five thousand years ago.

The Modern Review, Vol. LII. No. 2. pp. 151—160, with 2 plates and 12 illustrations.

A review of Marshall, Mohenjo-daro and Indus Civilization.

113 Cousens, Henry. The Antiquisities of Sind, with Historical Outline. Calcutta. 1929; see Annual Bibliography of Indian Archaeology, 1929. No. 108; 1930. No. 85; and 1931, No. 97.

Reviewed: Quarterly Journal of Mythic Society, Vol. XXII, n.s. No. 3; pp. 378-379 by N. I. "This brilliant volume ably compiled by Mr. Henry Cousens, M.R.A.S. is a veritable storehouse of information regarding not only the antiquities of Sind but also of its past history."

Calcutta Review, May 1932, by Kalidas Nag.

119 Gadd, C. J. Seals of Ancient Indian Style found at Ur.

(Reprint from) The Proceedings of the British Academy. Vol. XVIII, London, 1932. 22 pages, with 3 plates, Price of reprint 2s. 6d.

The title of this paper is not exhaustive, as Dr. Gadd includes not merely seals of the Indus valley style found at Ur, but all similar specimens from other sites in Mesopotamia (Tell Asmar, Lagash, Kish, etc.) Eighteen of these are described and discussed as well as illustrated in detail. In summing up Dr. Gadd reminds us that atleast eight of the seals in question are dateable with a fair amount of certainty, and the date so received supports Sir John Marshall's conclusion, that they originate from a period which can roughly be put in the earlier half of the third millenium B.C. The author also points out that a number of the Indus Valley seals found in Mesopotamia bear symbols in an astronomical character well known to early Mesopotamian civilization.

140 Langdon, S. Another Indus Valley Seal.

Journal Royal Asiatic Society 1932. pp. 47f. with a text illustration.

Professor A. B. Cook of Cambridge purchased this seal from a London dealer who had it among a lot of Assyrian cone seals, etc. the probable origin therefore is Mesopotamia. It is a round seal but of the Indus Valley type, bearing an engraved bull before a 'trough'; the inscription consists of six signs all in "Indus Script."

143 Mackay, Mrs. Dorothy. Mohenjo-daro and the Ancient Civilization of the Indus Valley. *In Bengali.*

Prabasi. Vol. XXXII, Pt. I, pp. 831-838, and Pt. II, pp. 105-113, with 6 and 14 illustrations.

A Bengali translation of an English article published in the American Journal "Asia" on discoveries at Mohenjo-daro.

145 Mahon, Colonel, A. E., D.S.O. Recent archaeological discoveries in India.

Journal of the Urusvati Himalayan Research Institute, Roerich Museum, New York, Vol. II, pp. 5-9.

Brief summary of excavations at Mohenjo-daro, Harappa, and other archaeological explorations carried out during the year.

144 MacMunn, Sir George. The New Light on Early India.

The Baptist Times, London, 11 February, 1932. On the excavations at Mohenjo-daro.

147 Marshall, Sir John, C.I.E., Litt. D., F.S.A., etc.

Mohenjo-daro and the Indus Civilization. 3 vols. London. 1931. See An. Bibl. of Indian Archaeology, 1931. No 120a

Reviewed. Journal Royal Asiatic So. 1932. pp. 453-466 by F. W. Thomas and under the title Mohenjo-daro—Indus Epigraphy pp. 466-503, by G. R. Hunter. Prof. Thomas not only reviews the book, giving a general impression of its contents, but adds a number of suggestions, interpretations, etc. He

compares the Indus script with the earliest Chinese writing in which he recognizes a number of similar symbols, he also enumerates a few Sanskrit words that are possibly derived from Sumerian. The reviewer's opinion is that the editors of the work have investigated the matter "very judiciously." Dr. Hunter points out a number of mistakes and omissions in the portions of the books dealing with the Indus script. His exhaustive discussion reveals a number of new facts regarding the character and possible explanation of the script; the signary, however, published by the editors may be regarded as almost complete. The reviewer has examined 1400 newly found inscriptions and very few new signs have been found. He gives a new sign manual in which 149 "basic" signs are listed with their only graphic variants, *gunu* modifications and *sanyukt* signs. Besides these, he gives a list of 242 "words," *i.e.*, a list of such combinations of signs which he considers on account of their sequences, to represent names, concepts and words. He also deals exhaustively with the so-called "accents," to which he assigns the values of vowels. The reasons of his identifications are given.

Indian Arts and Letters. Vol. VI pp. 151-153, by R. Frank Zentler, and Pierre Dupont (of the Mussee Guimet, Paris); The reviewers are inclined to conclude that the Mohenjo-daro civilization was originated by people of the Dravidian race.

"Two points appear to us to substantiate these conclusions; firstly the presence of several marked pots similar to those of southern India, and secondly the existence in southern India of beads and necklaces related in form and substance to those of the oldest sites at Ur and Kish....."

Zeitschrift der Deutschen Morgenlandischen Gesellschaft. n. s. Vol. 11, No. 1/2 1932, pp. 135-139 by W. Printz.

Journal Indian History Vol. XI, pp. 366-379, with 2 plates;

"The report, therefore is quite worthy of the great labour that it has involved, almost ten years' labour in the study, and five years' work at actual excavation."

The Modern Review, Vol. LI. No. 4 pp. 367-371.

Indian Historical Quarterly. Vol. VIII. pp. 121-164, by Narendra Nath Law.

"Therefore, the position that appears reasonable is that until further definite clues are forthcoming, the attribution of the authorship of the Indus Valley civilization to the non-Aryans is not justified."

The Times Literary Supplement, 17 March 1932, by H. Hargreaves.

Frankfurter Zeitung, 22 May 1932 by J. Nobel.

Journal of the Behar and Orissa Research So. Vol. XVIII. pp. 235-239 by Banerji Sastri.

"The co-ordination of the labours of numerous scholars has produced a sound and successful book, thoroughly worth reading and admirably readable. The present notes are confined to a consideration of the script."

Orientalistiche Literaturzeitung Vol. XXXV, No. 10 pp. 641-653 by O. Strauss.

153 Rawlinson, H. G. Indus Valley Civilization. Its rediscovery and Meaning.

Times of India, Bombay, 5, August 1932.

162 Shirai, Chosuke. Mohenjo-daro, Harappa, Indus.

(Remains of Mohenjo-daro and Harappa and the Indus Civilization of Ancient India. In *Japanese*).

Shikan, No. 2. 1932.

172 Venkatachalam, G. In pre-historic Mohenjo-daro.

Roopa-Lekha, Vol. III, No. 12, pp. 32-37. Account of a visit.

254 (Annonymous). Indus Valley Script. The Statesman, Calcutta, 14 Septr. 1932.

"In the June number of Ancient Egypt Sir Flinders Petrie the well known Egyptologist has published an article which goes far towards suggesting a possible solution for the deciphering of the ancient Indus Valley script brought to light in recent excavations carried out at Mohenjo-daro and Harappa by the Archaeological Department, a description of which is given in the very excellent work of Sir John Marshall. If this solution is not the actual one, it is certainly the most probable advanced so far."

255 (Annonymous). A 4000-Year old stone Inscription (In Hindi) Nagari, Vol. XIII pt. 2, p. 24.

A report quoted from the "Leader" by B. N. Pandya, of a stone measuring 32 by 7 feet found near the village of Vikramkhol district Sambalpur, containing an inscription in characters which, according to Mr. K. Jayaswal, show an intermediate stage between the Mohenjo-daro and Brahmi scripts, and are thus supposed to be as old as 2000 B. C.

256 Nath, Pran, D.S.C., PH. D. The Scripts on the Indus Valley Seals II.
Indian Historical Quarterly, Vol. VIII, Supplement, pp. 1-32.
See Annual Bibliography of Indian Archaeology, 1931, No. 232.

From the preface. "The occurrence of names of Sumerian deities was a puzzle. —I decided to make a thorough search in the Pauranic and Tantric literature for some clue. The discovery of the text of the goddess Camunda sheds a new light on the subject."

Contents: Geographic distribution of the Indus script.—Nature of the Indus language and the script.—A brief examination of the views advanced by Sumerian scholars.—Religion of the Indus people.

256a Nath, Dr. Pran. The Deciphering of the Indus Valley Script. Actes XVIII Congress, p. 145.

Cp. Annual Bibliography of Indian Archaeology. 1931, Nos. 232, 232a.

460 Thyagaraju, U. S. Sumero-Dravidian Affinities.

Quarterly Journal of the Mythic Society. Vol. XXIII, n. s. No. 2, pp. 222-228.

"While studying Professor Waddell's Sumer-Aryan Dictionary, it struck me that many of the Sumerian roots that he had listed had cognates or derivatives in the Dravidian languages. I give below a list of what seem to me to be Sumerian-Dravidic Affinities. I cannot make bold to draw conclusions from these affinities, for there is every possibility of such resemblances being merely accidental."

476 Carter, G. E. L. Old sites on the Lower Indus.

Indian Antiquary, Vol. LXI, pp. 86-90, with two plates.

Thambanwaro Masjid and some other sites.

"In short, the cult of the River (Darya Pir) and the simplicity of the architecture of the 'Masjid' indicate that we have a genuine fusion of Hinduism and Islam, which we can locate in that obscure period when the Arab dominion was passing away, after 871 A.D."

496 Stein, Sir Aurel K.C.I.E., F.B.A. The site of Alexander's Passage of the Hydaspes and the Battle with Poros.

The Geographical Journal, Vol. LXXX, No. 1, July 1932. pp. 31-46.

For an extract *Cf.* Annual Bibliography of Indian Arch 1931. pp. 1-5.

497 Stein, Sir Aurel.—A Historic Victory.

The Times, London, 15 April 1932, with one illustration and a map.

Alexander's Battle with Poros; the passage of the Jhelum.

498 Stein, Sir Aurel. Alexander's Passage of the Jhelum.

Indian Antiquary. Vol. LXI. pp. 183-185, with one sketch map.

Reprinted from the Times of 15th April 1932.

*Cf*. Annual Bibliography of Indian Archaeology, 1931. pp. 1-5.

504 Whitehead, R. B. The River courses of the Punjab and Sind. Indian Antiquary, Vol. LXI, pp. 163-169.

"It is certain that the course of each of the rivers in the plains of the Punjab and Sind has changed within historical times, but this does not mean that the main beds have moved to the extent that has been suggested. Harappa is on the old high bank of the Ravi and aerial reconnaissance along the bank has revealed a chain of sites possibly coeval with it. It would appear that the old high bank of the Ravi has remained much as it is to-day since pre-Vedic times. The discovery puts the matter in its proper perspective. The bed of a large river in an alluvial plain may be twenty and even thirty miles wide. The river is free to oscillate within these limits, but may not have transgressed them for thousands of years. I think this is true of the Ravi, the Chenab, and the Jhelum. The Beas and Sutlej seem to have been more mobile."

679 Frankfort, Henri. Archaeology and the Sumerian Problem. (The Oriental Institute of the University of Chicago; Studies in Ancient Oriental Civilization, No. 4) Chicago Illustrated. The University of

Chicago Press, 1932, Royal 8vo. XI, and 72 pages, with 4 comparative tables, 10 figures and a map. Price one dollar.

Dr. Frankfort discusses at length "Relations with the East and with the North" (pp. 23-40), a chapter dealing mainly with the finds at Mohenjo-daro and Sir Aurel Stein's Baluchistan Memoirs. One of the author's most important conclusions is: "The earliest settlers in Mesopotamia, then, were people descended from the Iranian Highlands and possessed of a culture which extended eastwards to the very borders of the Indus Valley." (p. 30)

680 Frankfort, Henri, Jacobsen, Thorkild and Preusser, Conrad:—

Tell Asmar and Khafaje; the first season's work in Eshnunna, 1930-31.

(The Oriental Institute of the University of Chicago; Oriental Institute Communications No. 13). Chicago, Ill. The University of Chicago Press, 1932, 8vo. ix and 112 pages, with 54 illustrations, including folding maps, and a frontispiece. Price $ 1-50.

This work is specially included in this bibliography, because it deals with the Mesopotamia site at which Dr. Frankfort has found later seals and beads of the Indus Valley type. Tell Asmar, identified with the ancient capital Eshnunna, is a site about fifty miles north-east of Baghdad. The excavation yielded finds of 2300 to 1900 B.C. The other site, Khafaje, lies 20 miles to the south-west of Tell Asmar.

681 G. (add.) C. J. A seal of Mohejo-daro type.

British Museum Quarterly, Vol. VII, part 1, pp. 5-6, with one plate Bought at Baghdad and presumably found somewhere in Iraq.

721 Stein, Sir Aurel. An Archaeological Tour in Gedrosia.(Memoris of the Arch, Survey of India, No. 43) Calcutta. 1931.

Reviewed. Quarterly Journal Mythic So. Vol. XXII, .n.s. No. 4, p. 526 by R. Indian Antiquary. Vol. LXI, pp. 96-97 by C. E. A. W. Oldham "Sir Aurel in planning this tour had kept in view the possibility of finding in the intervening country further links between the remains of the "Indus Culture," found at Harappa and Mohenjo-daro and the cultures revealed from pre-historic sites in Sistan, Iran and the Tigris-Euphrates basin. That such links have indeed been traced by him will be obvious to all who study the records of these last two tours; but their exact historical cultural and chronological inter-relations still remain in a large measure to be worked out."

# NOTES.

1 Mohenjo-daro and the Indus Civilization. Being an official account of archaeological excavations at Mohenjo-daro carried out by the Government of India between the years 1922 and 1927. Edited by Sir John Marshall etc., 3 vols London; Arthur Probsthain, 1931, Cf. Annual Bibliography of Indian Archaeology, 1931 No. 120a.

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2 See the Author's Studies in Ancient Oriental Civilization Archaeology and Sumerian Problem No. 4, Chicago, 1932, especially pp. 23ff. and Appendix IV.

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3 The chronology of the first half of the third Milleninum in Mesopotamia is a vexed problem, and the use of dates (2900 B. C. 3500 B. C. etc.) suggests a degree of precision in our knowledge which, in actual fact, does not exist. We may place Sargon of Akkad about 2500 B. C. or perhaps 2600 B. C. We know a homogenous Sumerian civilization which existed before his coming, and which is variously called Early Dynastic, pre-Sargonid, Early Sumerian, Lagash or plano-convex brick period. Here belong the well-known Royal Tombs from Ur, and also the remains discovered by the French at Lagash (telloch). The Early Dynastic is preceded by three distinct periods of civilization; the Jemdet Nasr, Uruk, and Al 'Ubaid periods. The last one represents the civilization of the earliest inhabitants of Mesopotamia, who are shown by their painted pottery to have come from the Iranian Highlands.

4 Journal Royal Asiatic So. 1925 p. 697 ff.

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5 For a further account see; Tell Asmar, Khafaje, and Khorsabad, Second Preliminary Report of the Iraq Expedition, Oriental Institute Communications No. 16, Chicago .1933, pp. 47-53.

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6 Tell Asmar, Khafaje, and Khorsabad, p. 52.

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7 Memoir Arch. Survey of India, No. 43, pp. 34, 106, 131-2 and elsewhere.

8 In Babylonia part of a town of the Larsa Period (about 2100 B.C.) was excavated at Ur by Mr. Woolley (Antiquaries Journal VII, No. 4) and samples of domestic architecture were obtained at Babylon (Reuther, Der Merkes, w.v. D.O.G.). At Tell Asma an Akkadian and Early Dynastic town is being excavated by the writer (O. I. C. No. 16) a town which is contemporaneous with Mohenjodaro. In Egypt, part of a workmen's settlement of about 2000 B. C. was excavated by Petrie, Illahun, Kahun, and Gurob, London, 1891. For the rest, we are dependent on the information from Tell el Amarna, though it may be that the very logical plan prevalent there may not have been generally used elsewhere in Egypt. See the annual reports of the excavations in the Journal of Egyptian Archaeology, London, 1922-33, and Peet and Wooley, City of Akhenaten I, London, 1923, Frankfort and Pendlebury, City

of Akhenaten II, London, 1933, N. de. Garis Davies, The Town House in Ancient Egypt, Metropolitan Museum Studies I, part 2, New York, 1929.

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9 The earliest bricks in Egypt are found lining graves of the Second Predynastic Civilization, the northern character and Asiatic affinities of which have been well established by Scharff, Grundzuge der Aegyptischen Vorgeschichte, Leipzig, 1923. The earliest building in bricks is the large tomb called "Tomb of Menes" near Naqadah, which belongs to a period when ephemeral Babylonian influences are traceable in many ways, and which moreover is decorated on the outside with recessed niches. For Sumerian influence in Egypt in the protodynastic period (a subject which needs to be studied afresh in the light of new evidence) see the writers Studies in Early pottery of the Near East, I, pp. 103-143, London, 1924.

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10 Proceedings of the Society of Biblical Archaeology 1909, pp. 339 ff.

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11 A Specialist's study on this subject will be published by Mr. Horace C. Beck in one of the next numbers of *Archaeologia*. Mr. Mackay has described the manufacture of etched beads by a modern Indian craftsman in *Man* 1933, p. 150.

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12 Archaeological Survey of India, Annual Report 1923-24, p. XIX, fig. 22.

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13 Further links between Ancient Sind, Sumer and elsewhere, *Antiquity*, December 1931. Unfortunately Mr. Mackay dates his Mesopotamian parallels in years, but such terms as 32 B.C. 3000 B. C. and soon convey no meaning, unless one knows beforehand which particular group of remains an Assyological author is thus arbitrarily dating.

14 Abhandlungen der Preuss. Akadomie der Wissenchaften Phil. Hist. Klasse, 1931, Nr. 4; 1932, Nr. 2.

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15 Cf. Webber, Altorientalische Siegelbilder, Fig. 233; Antiquaries Journal, Vol. X, pl. XLIX.

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16 Leopold Adametz, Wanderungen der Hamitten erschlossen aus ihren Haustierrassen, Wien, Max Hilzheimer, Naturiche Rassenges-chichte der Haussaugetiorre, pp. 188 ff.

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17 A few skeletal remains of sheep (p. 659) do not seem to be conclusive evidence on this point.

18 Cf. King Narmer's Palette and Ceremonial Mace, Caprat, Debuts de l'Art d' Egypte, figs. 167-173, or Quibell, Hierakonpolis, Vol. I Pl. II, Capart, Debuts de l'Art. p. 249 fig. 178

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19 I leave out of account here the accomplished statues of Pls. X and XI which stand absolutely apart, though Sir Marshall maintains that they must belong to the Indus civilization.

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20 Again Mr. Mackay's doubt whether this is so in the case of the statue of Pl. XCVIII, see my Archaeology and the Sumerian Problem, p. 29, note 1.

# INDIA—1933.

Archaeological Researches in India during the year 1932-1933.

No excavations were carried out at Mohenjo-daro owing to the retirement of Dr. E. J. H. Mackay, whilst at Harappa little work was done. We understand that Dr. Mackay, is bringing out a book on "Further excavations at Mohenjo-daro." As regards the mysterious Indus Valley script, we may draw attention to a paper on "Seals of ancient-Indian style found at Ur", published by Mr. C. J. Gadd in the Proceedings of the British Academy, Vol. XVIII. Mr. G. D. Hevesy's startling discovery that the script of the indus Valley shows certain analogies to that found on wooden tablets in the Easter Island has evoked considerable interest.

1 Note :—The present article has been mainly drawn from a note communicated to the principal Indian newspapers (The Statesman, of 5th November, 1934, The Hindu, of 8th November 1934, etc.) by Rai Bahadur Daya Ram Sahni, Director General of Archaelology.

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3 Ayyar R. S. Vaidyanath :—The Indo-Sumero-Semitic Problems. I. (Madras University Extension Lectures, 1932). Price 8 annas.

Reviewed : Journal of the Andhra Historical Research Society. VII, pt. 3, p. 190 by R. S (ubba) R (ao); "we agree whole-heartedly with all the views of the author."

Quarterly Journal of the Mythic So. XXIV, No. 1,p. 79f. by S. Sriantaya Ayyar has taken up the question of the identities, affinities and the analogies between the Sumerians and the Dravidians on the one hand and the Hittites and the Indo-Aryans on the other."

7 Casson, St. Excavator's progress ; the East-from Iraq to India. The Listener, X, No. 236, London, July 19, 1933, p. 90-93. 9 illustrations

A brief survey of the recent excavations in Ur, Persipolis and Mohenjo-daro.

15 Friederichs, Heinz F. Zur Kenntnis derfruhges chichtlichen Tierwelt Sudwestasiens.

Unter besonderer Berucksichtigung der neuen Funde von Mohenjo-daro, Ur, Tell Hleaf und Maikop. (Der Alte Orient, Vol. 32, No. 3-4) Leipsic ; J.C. Hincrichs' sche Buchhandlung, 1933, Royal 8vo. 45p. 26 illustration in the text, 9 pl. Price R. M. 2.70.

Contents : I, Degree of culture and the domestication of animals. II. The importance of the representations of animals for zoology and culture-history ; 1, Mohenjo-Daro on the Indus ; 2, Ur, in Southern Mesopotamia ; 3, Tell Halaf in Northern Mesopotamia ; 4, Maikop in Northern Caucasia—IV. Conclusion ;

"Als alteste Haustiere Sudwestasiens sind auf Grund der hier besprochenen Darstellungen auzusehen ; Ur, Zebu, Schalf undziege; ihnen folgen Dromedar ferrner Pferd und Esel, we ihre Bastarde, Maulesel und Maultier, Beweisen," A contribution to our knowledge of the prehistroic animal—world of south-

west Asia; with special relations to the new discoveries at Mohenjo-daro, Ur, Tell Half and Maikop.

Conclusion. The oldest domestic animals of south-west Asia based on what we already have explained, are, aurochs, zebu, sheep, and goat, then follows the dromedary, further the horse and donkey, as proved by the existence of their descendants the mule and hinny.

19 Grousset, R. The Civilizations of the East. Vol. I, The Near and Middle East, Vol. II, India, Translated from the French by Catherine Alison Phillips.

Reviewed; American Journal of Archaeology. XXXVII, No. 3, p. 527 by A. Coomaraswamy; "A readable and well documented handbook of value equally to the general student and to those who wish to pursue the subject farther. The Hellenistic problem is treated in orthodox fashion."

63 The Ganga. Special Archaeological Number.

Reviewed: Journal Andhra His. Resparch So. VII pt. 3, 192-3 by M. (ama) (Rao); "This is a welcome addition to the Hindi literature. The book opens with half a dozen papers on the history of Indological Research by eminent scholars like Dr. S. K. Iyengar, Professors P. Sreenivasacharis and B. Motichand. The two papers on the Indus Valley civilization by Dr. N. N. Law and Laksman Sarup are very intersting. This book contains many learned disquisitions on Ancient Indian Art and Architecture, Palcography, Chronology, Iconography, Epigraphy, Buddhism, etc., besides articles on matters of general interest. The work is profusely illustrated.

Hindu, Madras, March 21, 1933.

77 Law, Narendra Nath. Sindhu-upatyaka-ki-sabhyata aur Mohenjo-daro. (The Civilization of the Indus Valley and Mohenjo-daro. *In Hindi*).

Ganga, January 1933. p. 48-62.

79 Locquin, Jeame J. La civilisation pré-aryenne de la vallée de l'Indus.

Gazette des Beaux-Arts. Paris. VI, periode, IX, p. 321-42, 33 illustrations.

A brief and clear resume of the results of the excavations as well as of historical research.

81 Mackay, Dorothy;—Mohenjo-daro Prachin Sindhutirer Subhyata. (Mohenjo-daro and the ancient civilization of the Indus Valley, *in Bengali*).

Prabasi, Asvin and Kartik 1339 V. S.

A short review of the work done at Mohenjo-daro.

81a Mohenjo-daro and the Ancient Civilisation of the Indus Valley.

Smithsonian Institution. Annual Report for 1932, p. 329-444. illustration.

Resume of the discoveries made by Sir John Marshall.

82 Mackay, E. J. H. Excavations at Mohenjo-daro.

Annual Report, Archaeological Survey, 1928-29, p. 67-75, pls. xxiii-xxix.

Mr. Mackay has cleared a portion of what he considers to be the "Artisans' Quarter" of the late period, but the principal operation was the excavation of a large area to a depth of some 23 feet below the original surface of the mound and to the fourth level of occupation. A steady deterioration of the masonry and the decreasing size of the houses appear to be an index to the decay of this civilization from the Early to the Late Period. Mr. Mackay is of opinion that recently disocvered cylinder seal shows that the upper strata of Mohenjo-daro can be safely dated to 3000-2750 B. C. as its form is very like pre-Sargonic seals found at Mesopotamia. Other seals showing a goddess in a *pipal* tree and another horned figure in *yoga* attitude (—Siva) tend to give a stronger Indian than Western orientation to this Indus Valley Culture. It is not improbable that these sites will yield definitive prototypes of Indian deities and art motifs.

83 Mackay, E. J. H.—Mohenjo-daro Marvels, II; Some recent discoveries, Times of India, Bombay, 29 December 1933.

Sir George Birdwood Lecture to the Indian Section of the Royal Society of Arts, London.

84 Mahon E. A., Recent Archaeological Discoveries in India. Journal of the Urusvati Himalayan Research Institute (Roerich Museum, New York) III. 37-40.

A review of the Annual Arch. Survey Report, 1927-28.

85 Marshall, J. Mohenjo-daro and the Indus Civilization, London, 1931. See Annual Bibliography of Indian Archaeology, 1932. No. 147.

Reviewed : Antique Review, Rajshahi III p. 111-119 by Binode Bihari Roy Vedaratna. Frankfurter Zeitung, January 1933 by W. Kirfel. Journal Indian History, Madras, XII, p. 114-127, 268-284, 423-442, 6 plates by S. K. Aiyangar.

112 Svarup, Lakshman. Mohenjo-daro (*in Hindi*). Ganga. January 1933, p. 62-69, 9 illustations Nos. 90-97.

228 Hevesy, G. de. Oceanie et Inde pre-aryenne ; Mohenjo-daro et l'ile de Paques. Bulletin de l'association Franciase des Amis de l'Orient, Paris, No. 14/15, p. 29-50 1 plate; "l'ecriture de la vallee de l' Indus, et celle de ses antipodes, l'ecriture de l'lle de Paques, appartiennent a la meme souche.

229 Hevesy, G. de. Sur une Ecriture Oceanienne paraissant d'origine neolithique.

Bulletin de la Societe Prehistorique Francaise, Le Mans, No. 7/8 p. 3-15, 3 plates.

The author compares the script of the Easter Island with that of Mohenjo-daro. He thinks that both represent the same type and may have originated in neolithic China.

233 Sur. A. K. Origin of the Indus Valley Script.

Indian Historical Quarterly, IX, p. 582.

Discovery of a connecting link between the Indus Valley script and the Brahmi spirit in a cave inscription at Vikramkhol in Sambalpur.

325 Breloer, B. Alexanders Kampf gegen Poros. Ein Beitrag zur indischen Geschichte. (Bonner Orientalistische Studien, 3) Stuttgart.

Introduction. Section A. detailed study of the accounts of the ancient historians Section B, Results of the author's local investigations. Eight points lead him to the conclusion that not Jalalpur but Jehlum was the site of Alexander's battle with Poros. In a postscript the view of Sir Aurel Stein is critisized.

Reviewed; Journal of Indian History, XII, p. 318f by V.R.D. Acta Orientalia. XII, I. p. 80 by S. Konow; "His arguments are solid and so far as I can judge, conclusive."

336 Friederichs, H. F. and H. W. Muller.

Die Rassenelemente in Indus. Tal Wahrend des 4. und 3 vorchristlichen Jahrtausend unde ihre Verbreitung.

Anthropos (International review of Ethnology and Linguistics, St. Gabriel-Modling near Vienna.) XXVIII, 383-406, illustrations.

The population of the Indus region in the 4th-3rd century B. C. consisted of four different ethnic elements; weddoid, hamitic, mongloid, and armenoid. It does not differ principally from the ancient population of Mesopotamia.

431 Fabri, C. L. Alexander's Battle with Porus; Sir Aurel Stein's new location. Annual Bib. of Indian Archaeology. 1931, p. 1-5.

640 Herzfeld, E.—Aufsatze zur altorientalischen Archaeologie II. Steimpelsiegel; A. Problematik, B. Die eleamis ch-kaspische unde die hettische Familie, C. Die sumerische Familie.

Archaeologische Mi teilungen ays Iran. (Berlin) V; pt. 2-3, pp. 49-124.

The author discusses the problems connected with the non-cylindrical button-shaped, hemispherical and theriomorphic seals that are found in Asia Minor, Armenia, Mesopotamia, Syria, Persia and Baluchistan. Their origin goes back to prehistoric times when real "buttons" were used for making personal property. The author then inquiries how far certain types of seal impressions (not the form) are characteristic of certain periods and can be helpful for a comparison of archaeological problems notably in Elam and Sumer. In describing the two chief classes (B and C) the creterium is formed by the figures on the seals and the technique, by the shape of the seals. Many of these figures are reproduced in the text.

# 1934

# ANNUAL BIBLIOGRAPHY OF INDIAN ARCHAEOLOGY

This publication is issued by the Kern Institute-Leyden, Holland, with the aid of the Governments of Netherlands India, Imperial Government of India, and Ceylon, and the Ruling Princes of India.

It is a quato Volume of 166 pages and contains eight plates.

The foreword is by Prof. Vogel ; in which he writes "for the introduction of the present volume we have received important contributions from various quarters. We are indebted to Dr. C. L. Fabri for a general article on the progress of archaeological research in India illustrated by means of some excellent photographs which the Director General of Archaeology has placed at our disposal; The text-illustrations belonging to this article were prepared by Dr. Fabri.

In the Indtroduction under the heading "prehistorics," Dr. Fabri writes about Mohenjo-daro, thus :

"During December 1933 and January—February 1934 Mr. K. N. Puri, the custodian of the Mohenjo-daro Museum, and Mr. Q. M. Monteer, who superintended the conservation work carried out on that site, spent a few weeks in excavating at Mohenjo-daro a small mound of the Dk. area to which the site-mark Dk. I, has been given. A nine foot wide street runs across the middle of this mound, and the large number of rooms on both sides have been excavated down to a level of some 11 feet. The remains found here are similar to those excavated by Dr. E. Mackay in other portions of the Dk. area, and belong mainly to what has been termed the "Late period of Mohenjo-daro." The rooms are built of burnt bricks, and a covered brick-built drain runs along the whole length of the street, which is some 250 feet (76 meters). The upper strata, Late III and Late II. yielded few antiquities ; but rooms of the Late I period contained some two hundred objects of interest. Among these were seals of the now wellknown Indus Valley type, fragments of shell-pin, a three-pronged fork of copper, minor objects made in terra-cotta and faience, a copper casket (height 7" or 18 cm) and two small beads made of gold-leaf. One of the seals reproduced here as a text-illustration (Fig. 1) deserves special mention. We possess a number of seals at Mohenjo-daro with representations of a tricephalic (three-headed), composite animal, and one or two sealings with a bi-cephalic(two-headed), creature but this is the first seal showing a bi-cephalic monster clearly drawn, with a taurine body and the heads of a short-horned bull and of a so-called "unicorn." Now I believe that this seal is important in so far as it may settle the much discussed matter of this unidentified animal. It has been argued that the "unicorn" may in reality represent an animal with two horns, only one horn being shown on account of the fact that the horns are seen in profile, so that the one would cover the other. The fact, however, has been overlooked that all other two-horned animals, *e. g.*, the ibex, are constantly represented with both horns, and that even the tusks of the elephant are shown separately, though there would have been good reason to omit the second one.

which is, in fact, often invisible. Now that we have a representation of an ordinary bull with the head of the unicorn added to it, I believe the problem has been solved, in as much as we must relegate the unicorn to the large category of composite and imaginary animals invented by the ancients. It certainly was not meant for a bull, nor was it a buffalo or an ibex. All these existing animals are illustrated by the Mohenjo-darians with remarkable realism. That they were able to observe living animals with the eyes of an artist, is well proved by the fish shown in the same seal."

The following articles regarding SIND have appeared in the different journals of India : (the numbers refer to numbers in the Bibliography).

76 Frankfort H. The Indus civilization and the near East.

Annual Bibliography of Indian Archaeology, 1932, p. 1 to 12. (also published separately).

"The stage of the Indus civilization which the excavations have disclosed was reached about the middle of the third millenium B. C. "We have noticed in discussing architecture and metrology, religious monuments and seal designs, that the suggestion of a common substratum for certain cultural traits in India and Mesopotamia has been forced upon us by the various similarities." This article has been also reviewed in SYRIA, XV, p. 385-7.

95 Mackay, Ernest. The Indus Civilization ; Some connections with Sumer, Elam and the West.

Journal Central Asian So. XXI, pt. 3, 0. 240 ff.

96 Mackay, E. J. H. Further Excavations at Mohenjo-daro Journal Royal Society of Arts, January 1934.

This lecture, delivered before the R.S.A. London, deals mainly with the objects and buildings excavated at M. since 1927, and discusses the probable relation of the Indus Valley culture to other contemporary civilizations.

97 Mirchandani, Bherumal. Mohenjo-daro. Karachi, published by the Author, 1934, 93 p. 1 pl. price Rs. 1-4. Reviewd by the Madras Mail, 27-2-1934 "A convenient guide book."

98 Majumdar, N. G. Explorations in Sind. (Memoir Archaeological Survey No. 48) Delhi. Manager of Publications, 1934, Roy. 4to, XI, 172 p. 46 pl. Price Rs. 17-2.

From the Preface," In Sind itself there must have been many more stations wedded to the Chalcolithic civilization of Mohenjo-daro. The need for a systematic survey of the Indus valley and its border lands was keenly felt by the Indian Archaeological Department almost from the very beginning of its work at Mohenjo-daro. In the cold weather of 1927 Sir John Marshall enabled me to conduct excavations on a modest scale at the mounds of Jhukar near Larkana. In 1928 I explored the northern districts of Sind beginning with the deltaic region. My second journey commenced from Dokri in October 1930, and was concluded in April 1931. These two journies enabled me to examine a large number of sites and an account of my explorations of these is narrated in the following pages."

Contents. (I) Physical aspects and climate of Sind, (II) The Mounds of Jhukar near Larkana. (II,) In southern Sind and along the Indus i.e., In the Delte Country. ii, From Kotri to Amri. (iii) From Hyderabad to Arore, (IV,) Further journey along the Idus, (V.) In and around Lake Manchhar. (VI,) In the hill tract of Johi. (VII,) In the hills of Sehwan and Kohistan. (VIII,) To Karachii and Kotri through the Baran and Mol Valleys. IX, General Observations. Appendices.

Reviewed : Indian Historical Quarterly, (X) p. 827-9 by R. C. M. we sincerely congratulate Mr. Majumdar on the valuable work he has done and the excellent report he has written."

103 Mookerji, Radha Kumud : The Indus Civilization. c. 3250-2750 B. C. Journal of the United Provinces Historical Society, (VII) pt. 1. p. 1. to 21. "The Rigveda from the very nature of its geographical and historical background shows wide acquaintance with the non-Aryan world, the conditions of its life and culture, some of which, as described in the Rigveda, tally with those indicated by the remains unearthed at Mohen-jo-Daro. Thus the non-Aryan of the Rigveda may in a sense be taken to be the non-Aryan responsible for the Indus civilization."

113 Rawalinson H. G. and Venkateswara, S. V. The Indus Valley Civilization. Two views.

The Aryan Path, Bombay, February 1934, p. 84-90.

Rawlinson. The Aryan myth must take its place among the many exploded theories whose debris encumbered the shelves of the historian."

Venkateswara. "The finds at Mohenjo-daro belong to the later Vedic perio and practically the whole of the Rig-Vedic hymns are anterior to the finds in date. I have already shown that the age of the Veda is about 11,000—5th millenium B. C.

130 Vogel, J. Ph. Op. het voetspoor van Boedha (In the footsteps of the Buddha) Haarlem ; H. D. Tjeenk Willink,1934 ,8 vo. 1934, 165p. 20 pl. 13 illustrations. map. Price 3 guilders.

Reprinted from Nieuwe Rotterdamsche Courant 1925-26 (Letters from India). The XII chapter deals on Mohenjo-daro.

Reviewed in The Indian Guide, a political economic and literary periodical in Dutch (XLVI) p. 286f.

236 Fabri, C. L. Latest attempts to read the Indus Script (a summary). Indian Culture I. pages 50-56.

238 Hunter G. R. The Script of Harappa and Mohenjo-daro and its connection with other scripts. Introduction by S. Langdon.

(Studies in the History of Culture No. 1). London, Kegan Paul, Trench Trubner & Co., Ltd., 1934, Roy. 8 vo. 210 p. 37 pl. Price 21s.

From the Introduction : "Dr. Hunter has presented here all the known material. I am glad to have the opportunity of commending his book to scholars as a

trustworthy edition of the texts." Geographically the script bears a close resemblance to Proto-Elamite, and a less close to Sumerian of the Jamdet-Nasr and Fara periods, except as regards the anthropomorphous signs. The latter bear a close resemblance to Egyptian of the Old and Middle Kingdoms."

Reviewed. in MAN, XXXIV No. 199, by H. G. Rawlison; "Important conclusions which take us several steps forward."

(It may be mentioned that MAN is a monthly record of Anthropological science, published under the direction of the Royal Anthropological Institute of Great Britian and Ireland. London W. C. 1, Upper Bedford Place, Annual subscription 20/s.)

Also in the Illustrated London News May 12, 1934, p. 746 by C.E.B.

241 Piccoli, G. A. comparison between Signs of the "Indus Script" and the Signs in the Corpus Inscriptionum Etruscarum. Indian Antiquary. LXII, p. 213-5, 2 plates.

"I propose to show that certain characteristic signs recurring in the Indus script will be seen to be indentical with those found on various Etruscan utensils and monumental remains."

242 Sastri, S. Srikantha. Studies in the Indus Scripts.

Quarterly Journal of the Mythic Society, Bangalore. XXIV p. 224-30, 335-342.

I. "there is not a shred of positive evidence to prove that the Indus culture is pre-Aryan."

II. Similarities between the script of the Vikramakhol inscr. (supposed to be a development of the Indus script) and that of the Glozel forgeries—III. Vedic evidence for the Aryan character of the Indus culture—VI Tribes of the Indus Valley.

281 Jayaswal, K. F. The Wikramkhol Inscription.

Indian Antiquary, (LXII,) p. 58-60. 9 plates.

"The Vikramkhol inscription supplies a link between the passage of letter-forms from the Mohenjo-daro script to Brahmi. It, however, need not necessarily be an Aryan piece of writing."

390 Keith, A. Berriedale : The Aryans and the Indus Valley Civilization.

Ojha Vol. Section K. 58-66. "The negative conclusion that the Indus Valley civilization is not of the Rigveda seems conclusively established."

It may be said that the ojha Vol. contains articles by a number of Indian and foreign scholars on various topics of Indian History, Archaeology and general culture, written in commemoration of the septuagenary of Mm. Gaurisankar H. Ojha. The great majority of articles are in Hindi, but other Indian and European languages are also represented, each having an introductory synopsis in Hindi.

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